IA70 Motherboard

Mini-ITX Fan SBC with Intel®ATOM N270 1.6GHz Processor, VGA, LCD, Giga Ethernet, Mini-PCI and PCI Slot Interface.

USER MANUAL Version 1.3

FCC Statement

This device complies with part 15 FCC rules. Operation is subject to the following two conditions：

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class "a" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at him own expense.

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Warranty

We warrant that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, we will, at its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service.

If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W07Axxxxxxxx means October of year 2007.

Packing List

Before using this Motherboard, please make sure that all the items listed below are in your package：

- IA70 Motherboard
- IA70 SBC User Manual
- Hard Disk's IDE Cable
- User's Manual & Driver CD

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Customer Service

We provide service guide for any problem as follow steps：

1. Visit our website (www.winmate.com.tw) to find updated information of the product.
2. Contact with your local distributor, sales representative, or our customer service center for technical support if you need additional assistance. You may have to prepare the following information in advance before you call us：

- Product serial number
- Peripheral attachments
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

Safety Precautions

- **Warning!**

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronic personnel should open the PC chassis.

- **Caution!**

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Safety and Warranty

1. Please read these safety instructions carefully.
2. Please keep this user's manual for later reference.
3. Please disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
12. Never pour any liquid into an opening. This could cause fire or electrical shock.
13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
14. If any of the following situations arises, get the equipment checked by service personnel:
    A. The power cord or plug is damaged.
    B. Liquid has penetrated into the equipment.
    C. The equipment has been exposed to moisture.
    D. The equipment does not work well, or you cannot get it to work according to the user's manual.
    E. The equipment has been dropped and damaged.
    F. The equipment has obvious signs of breakage.
15. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20° C (-4°F) or above 60° C (140° F). It may damage the equipment.

Revision History

Version	Date	Note	Author
0.8	2008.12.04	➢ Initial Draft	Aladin Huang
1.0	2008.12.23	➢ First Version	Aladin Huang
1.1	2009.10.16	➢ Add the Parallel Port description	Bruce Huang
1.2	2011.2.22	➢ Add New BIOS Setting	Cage Hsu
1.3	2011.2.24	➢ Add New BIOS Setting	Cage Hsu

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CHAPTER 1

General Information

This chapter includes IA70 Motherboard background information.

Sections include:

- Introduction
- Feature
- Motherboard Specification
- Function Block
- Board Dimensions

Chapter 1 General Information

1.1 Introduction

IA70 SBC is equipped with Intel 945GSE North Bridge and Intel ICH7M South Bridge which are designed for use with Intel's mobile platform. Intel's 945GSE platform delivers the performance and high scalability cutting-edge embedded computing application.

In peripheral connectivity, IA70 SBC with one PCI slot, one PCI-E(x1) and Mini-PCI I/O ports, two SATA connectors, and eight Hi-Speed USB 2.0 port connectors.

Thus, IA70 SBC is designed to satisfy most of the applications in the industrial computing market, such as Gaming, POS, KIOSK, Industrial Automation, and Programmable Control System. It is a compact design to meet the demanding performance requirements of today's business and industrial applications.

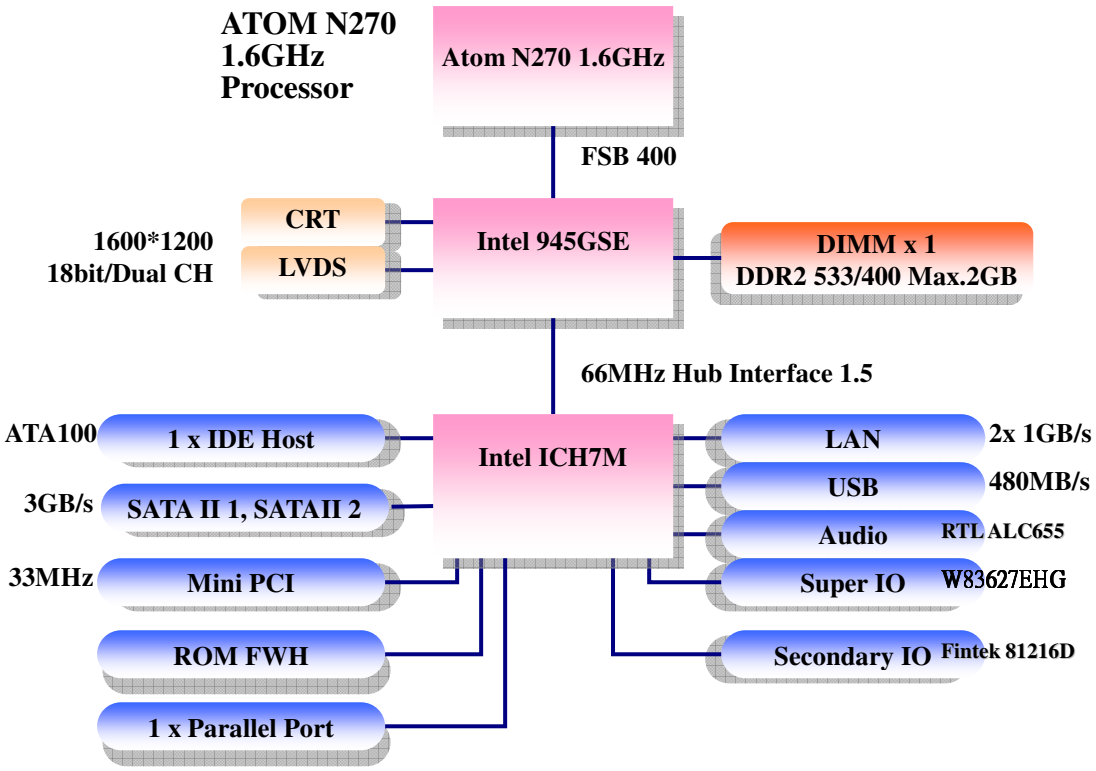
1.2 Feature Summary

Form Factor	➢ Mini-ITX Form Factor (170mm x 170mm)
Processor	➢ Intel® Atom N270 1.6GHz processors
Main Memory	➢ System memory up to 2GB DDR2 400/533, 1xDIMM
Chipset	➢ Integrated Intel 945GSE + ICH7M Chipset
Graphics	➢ Intel® GMA950 graphic engine Integrated 224MB shared supports VGA
LAN Support	➢ Dual Gigabit Ethernet (Dual Fast Ethernet optional)
Peripheral Interfaces	➢ 8 x USB2.0 ports ■ Two ports routed to the front side Box ■ Four ports routed to the Box's I/O side ➢ 1 x PCI slot, ➢ 1 x PCIE(x1) slot ➢ 1 x Mini PCI slot ➢ 4 x COM ports ➢ 1 x CF card slot (Optional) ➢ 2 x SATA interfaces ➢ 1x Parallel Port

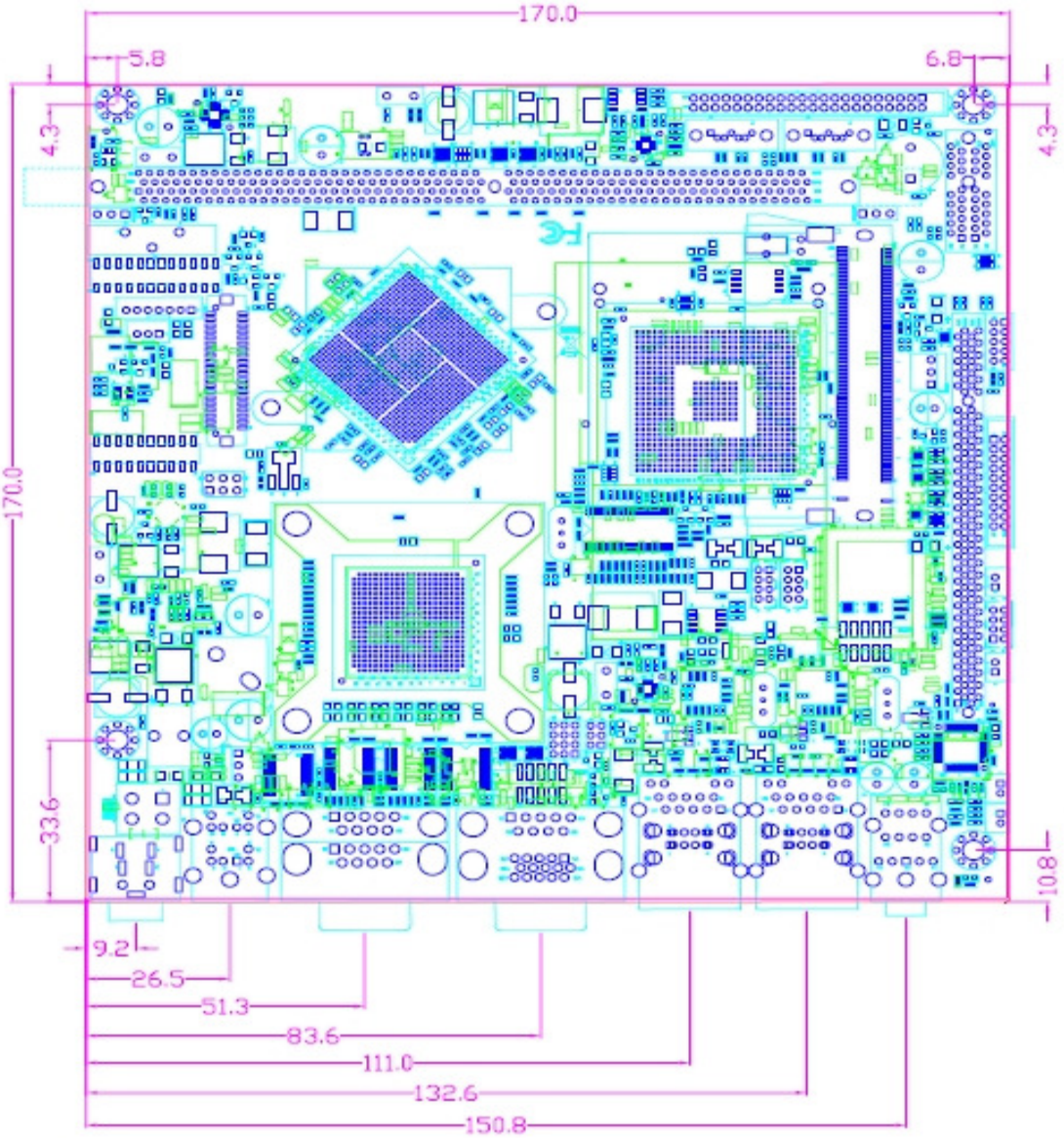
1.3 Motherboard Specifications

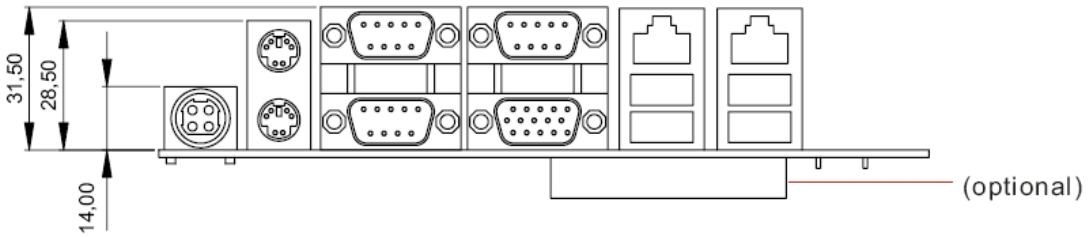
CPU Type	Intel® Atom N270 1.6GHz Processor
CPU FSB	533 MHz
CPU Socket	Intel Socket M
Chipset	Intel 945GSE / ICH7M
BIOS	AMI 4Mbit Flash
VGA	Intel® GMA950 Graphic engine 224MB shared with system memory
LVDS	Intel® 82945GSE built in single- or Dual-channel panel support up to 1600 x 1200, 18bit
LAN	2 x Giga LAN (Dual Realtek RTL8111B Controller)
Memory Type	1 x DDR2 DIMM socket, supports up to 2GB DDR2 400/533 SDRAM
LPC I/O	Winbond W83627EHG integrated hardware monitoring
Keyboard/Mouse	2 x PS/2 Keyboard/Mouse connectors
IDE Interface	Dual channels; supports Ultra DMA 33/66/100
Sound	Realtek ALC655 (Line-in, Line-out, Mic in)
USB	8 ports, USB 2.0 (4 x USB Connector, 4 x USB pin-header)
Edge Connectors	1 x +12V DC-IN Jack 2 x PS/2 connector for keyboard/mouse 3 x DB9 for COM1,COM3 & COM4 1 x VGA out connector + 1 x DB9 for COM1 2 x Gigabit LAN RJ-45 + 1 x dual USB stack connector 1 x Audio Jack for Audio (Line-in, Line-Out, Mic-in)
On Board Pin-Header Connectors	1 x 44 pins box-header 2 x SATA connector for SATAI/II 3.0 Gb/s 1 x 10pins pin-header for Front Panel(2x5) 1 x 3pins pin-header for CPU Fan 1 x 3pins pin-header for System FAN 1 x 8pins pin-header for 5V/12V external power 1 x 2pins pin-header for 5V external power 1 x 2pins pin-header for 12V external power 1 x 4pins ATX 12V connector 2 x 2pins pin-header for Front Audio (with Amp.) 1 x 8pins pin-header for USB 5/6(2x4) 1 x 8pins pin-header for USB 7/8(2x4) 1 x 10pins pin-header for COM2(RS232)(2x5) 1 x 40pins DF13 Connector for LVDS 1 x 3pins digital panel backlight brightness controller 1 x 7pins digital panel backlight controller 1 x 10pins pin-header for DIO(2x5)
Power Connector	Input: 4-pin ATX 12V Power input
Expansion Slots	1 x PCI, 1 x PCIE(x1), 1 x Mini-PCI
Form Factor	Mini-ITX
Dimensions	170mm x 170mm
Mechanical & environmental	Operating temperature: 0 deg. C to 60 deg. C Operating Humidity: 30 ~ 90% Relative humidity, non-condensing Certification: CE, FCC, RoHS
Parallel Port	One parallel port with Extended Capability Port(ECP) and Enhanced Parallel Port(EPP) Support

1.4 Function Block



1.5 Board dimensions





CHAPTER 2

Installations

This chapter provides information about how to use the jumps and connectors on IA70 Motherboard.

The Sections include:

- Install the I/O shield
- Install and remove Memory Module
- Connect the IDE cable
- Connect the SATA cable
- Connect internal headers
- Connectors on IA70 Motherboard

Chapter 2 Installations

2.1. Installation Precautions

Cautions

The procedures in this chapter assume familiarity with the general terminology associated with single board computers and with the safety practices and regulatory compliance required for using and modifying electronic equipment.

Disconnect the computer from its power source and from any telecommunications links, networks, or modems before performing any of the procedures described in this chapter. Failure to disconnect power, telecommunications links, networks, or modems before you open the computer or perform any procedures can result in personal injury or equipment damage. Some circuitry on the board can continue to operate even though the front panel power button is off.

Follow these guidelines before you begin installing the IA70 Motherboard:

- Always follow the steps in each procedure in the correct order.
- Set up a log to record information about your computer, such as model, serial numbers, installed options, and configuration information.
- Electrostatic discharge (ESD) can damage components. Perform the procedures described in this chapter only at an ESD workstation using an antistatic wrist strap and a conductive foam pad. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

When you install and test the IA70 Motherboard, observe all warnings and cautions in the installation instructions.

To avoid injury, be careful of:

- Sharp pins on connectors or headers
- Sharp pins on printed circuit assemblies
- Rough edges and sharp corners on the chassis
- Hot components (like processors, voltage regulators, and heat sinks)
- Damage to wires that could cause a short circuit

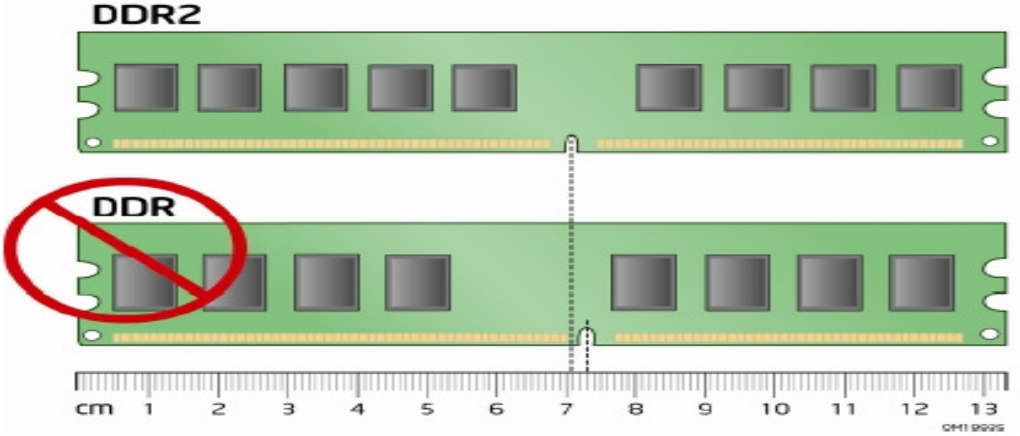
Observe all warnings and cautions that instruct you to refer computer servicing to qualified technical personnel.

Do not overload the power supply output. To avoid overloading the power supply, make sure that the calculated total current loads of all the modules within the computer is less than the output current rating of each of the power supplies output circuits.

2.2. Memory Module（DIMM）Installation

IA70 Motherboard supports one DDR2 memory socket for a maximum total memory of 2GB in DDR2 memory type.

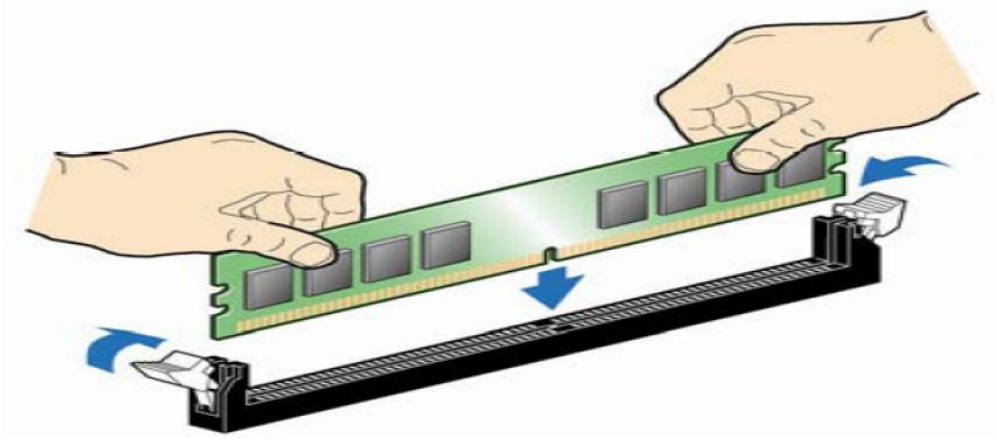
To make sure you have the correct DIMM, place it on the illustration as follow showing the DDR2 DIMM. All the notches should match the DDR2 DIMM.



2.2.1 Installing and Removing Memory Modules

To install the DDR2 modules, locate the memory socket on the board and perform the following steps:

1. Make sure the clips at either end of the DIMM socket are pushed outward to the open position.
2. Hold the DDR2 module so that the notches of the DDR2 module align with those on the memory socket.
3. Insert the bottom edge of the DIMM into the socket.
4. When the DIMM is inserted, push down on the top edge of the DIMM until the retaining clips snap into place. Make sure the clips are firmly in place.



To remove a DIMM, follow these steps:

1. Turn off all peripheral devices connected to the computer. Turn off the computer and disconnect the DC power cord.
2. Gently spread the retaining clips at each end of the DIMM socket. The DIMM pops out of the socket.
3. Hold the DIMM by the edges, lift it away from the socket, and store it in an anti-static package.
4. Reinstall and reconnect any parts you removed or disconnected to reach the DIMM sockets.
5. Replace the computer's cover and reconnect the DC power cord.

2.3. I/O Equipment Installation

2.3.1. 12V DC-IN

The Motherboard allows to plug in 12V DC-IN jack on the board without another power module converter under powered consumption by Intel Atom N270 1.6GHz processor.

2.3.2. PS/2 Keyboard and PS/2 Mouse

The Motherboard provides two PS/2 interface. The PS/2 connector supports Keyboard and Mouse. In other cases, especially in embedded solutions, a mouse is not used. Therefore, the BIOS standard setup menu allows you to select* "All, But Keyboard" under the "Halt On" item. This allows non-keyboard operation in embedded system solutions without the system halting under POST.

2.3.3. Serial COM ports

Three RS-232 connectors build in the rear side of I/O ports. Fourth optional COM ports support RS-232 signal. When an optional touch-screen is ordered with Panel PC, serial COM port can connect to a serial or an optional touch-screen. One optional COM port supports RS232/422/485 choice through jumper setting.

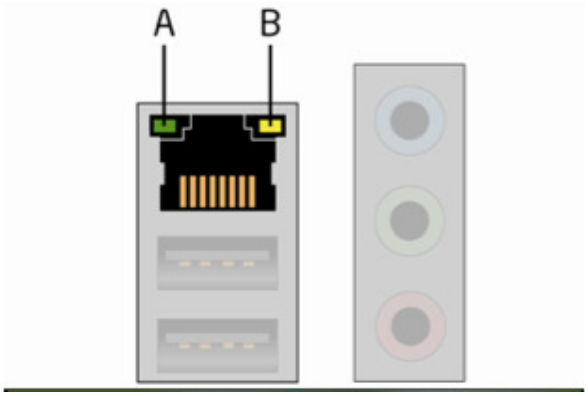
2.3.4. Internal VGA

The Motherboard has one VGA port that can be connected to an external CRT/ LCD monitor. Use VGA cable to connect to an external CRT / LCD monitor, and connect the power cable to the outlet. The VGA connector is a standard 15-pin D-SUB connector.

2.3.5. Ethernet interface

The Motherboard is equipped with Dual Realtek RTL8111B chipset that is fully compliant with the PCI 10/100/1000 Mbits/s Ethernet protocol compatible. It is supported by major network operating systems. The Ethernet ports provide two standard RJ-45 jacks.

Two LEDs are built into the RJ-45 LAN connector where located on rear side of the box. See as the graphic follows:



- RJ-45 10/100 Ethernet LAN Connector LEDs Table

LED	LED State	Indicates
A (Green)	Off	LAN link is not established
	On	LAN link is established
	Blinking	LAN activity is occurring
B (Yellow)	Off	10 Mbits/s data rate is selected
	On (steady state)	100 M bits/s data rate is selected

2.3.6. USB ports

The Motherboards supports up to eight USB 2.0 ports (two ports routed to the front side of the box; four ports routed to the rear side of the box; and there are additional two internal USB 2.0 pin headers on the Motherboard). The USB 2.0 ports are backward compatible with USB 1.1 devices. USB 1.1 devices will function normally at USB 1.1 speeds. USB 2.0 support requires both an operating system and drivers that fully support USB 2.0 transfer rates. Disabling Hi-Speed USB in the BIOS revert all USB 2.0 ports to USB 1.1 operation. This may be required to accommodate operating systems that do not support USB 2.0.

Eight USB devices (four with pin headers) may be connected to the system through an adapter cable. Various adapters may come with the USB ports. USB usually connect the external system to the Motherboard's internal system. The USB ports support hot plug-in connection function. However, you should install the device driver program before you use the device.

NOTE

Computer systems that have an unshielded cable attached to a USB port might not meet FCC Class B requirements, even if no device or a low-speed USB device is attached to the cable. Use a shielded cable that meets the requirements for a full-speed USB device.

2.3.7. Audio Jack (Pin-header)

The Audio 5.1 channel capabilities are provided by a Realtek ALC655 chipset which supporting digital audio outputs. The audio interface includes Mic-in, Line-in and Line-out.

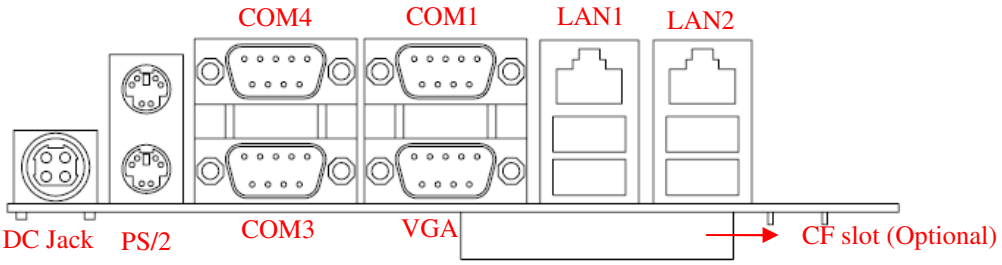
Item	Description
A	Line In
B	Line Out
C	Mic In

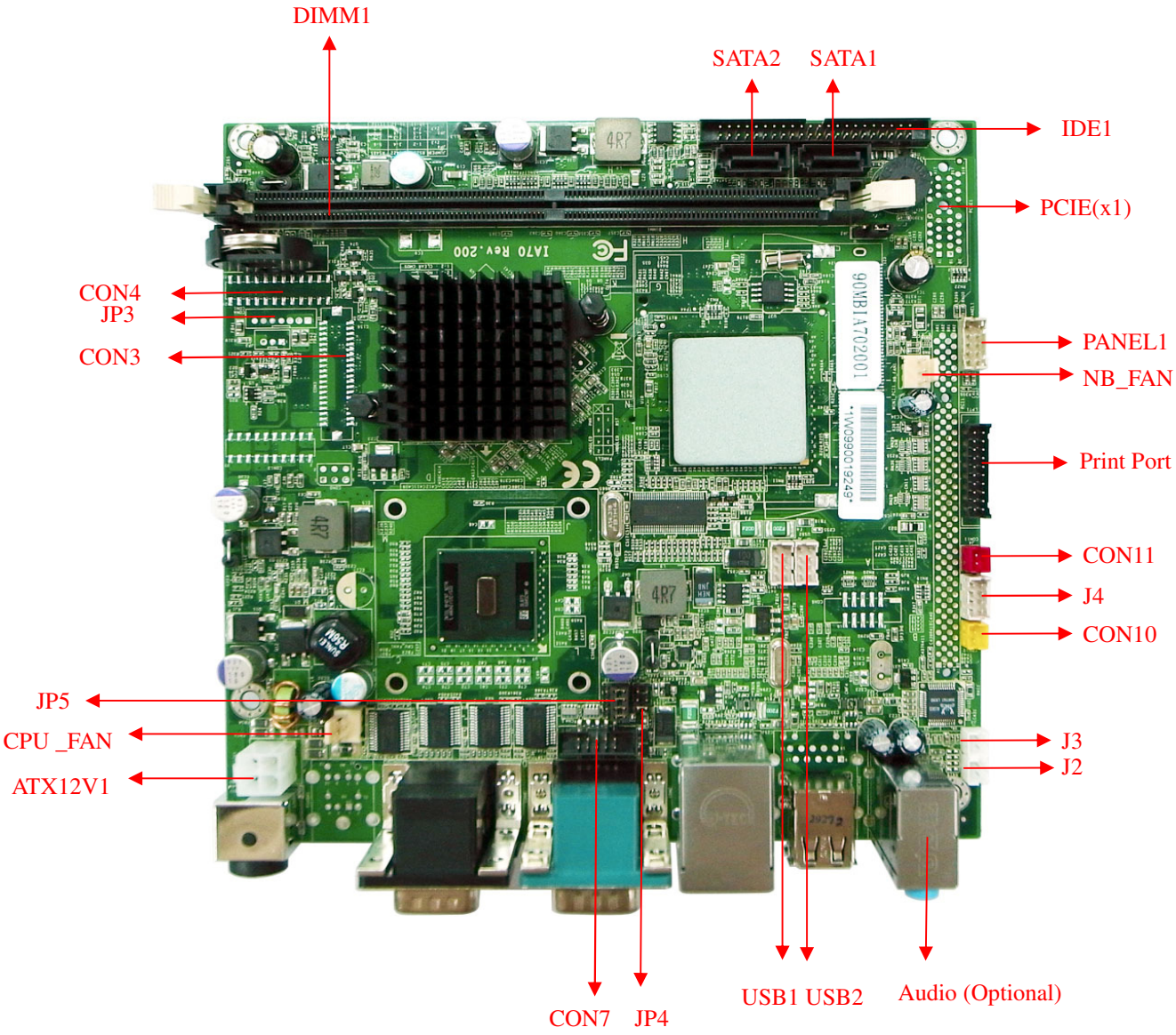
NOTE

The audio line out connector where located on rear side of the box is designed to power headphones or amplified speakers only. Poor audio quality occurs if passive (non-amplified) speakers are connected to this output.

2.4. Jumpers and Connectors

TOP

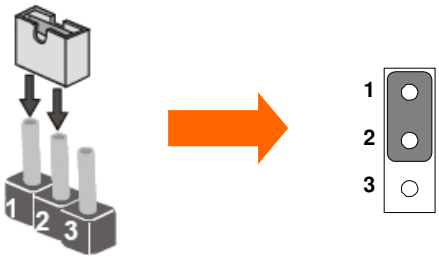




2.5. Jumper Setting

A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes. Generally, you simply need a standard cable to make most connections.

The jumper setting diagram is as below. If a jumper shorts pin 1 and pin 2, the setting diagram is shown as the right one.

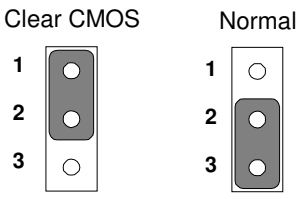


The following tables list the function of each of the board's jumpers.

Label	Function	Note
JP1	Clear CMOS	3x1 header , pitch 2.0mm
JP2	CF Card Priority	3x1 header , pitch 2.0mm
JP4	RS232 / RS422 / RS485 Selector	2x3 header , pitch 2.0mm
JP5	RS232 / RS422 / RS485 Selector	3x4 header , pitch 2.0mm
CON5	LVDS VOLTAGE	2x3 header , pitch 2.0mm

2.5.1. JP1: Clear CMOS

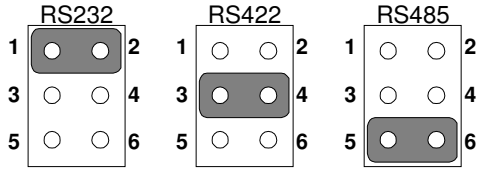
User must to make sure the power supply to turn off the power supply before setting Clear CMOS. Users remember to setting jumper back to Normal before turning on the power supply. Default: 2 short 3.



Pin No.	Functions
1 Short 2	Clear CMOS
2 Short 3	Normal

JP4 : COM1 RS232 / RS422 / RS485 Function Selector

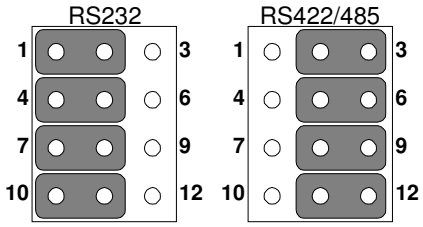
The jumper can be configured to operate COM1 in RS-232/422/485 mode. And the setting must be cooperated with the 2.5.2 settings. Default 1 short 2.



Pin No.	Functions
1 Short 2	RS232
3 Short 4	RS422
5 Short 6	RS485

2.5.2. JP5: RS232 / RS422 / RS485 Selector

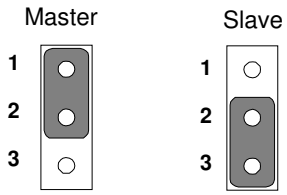
The jumper can be configured to operate COM1 in RS-232/422/485 mode. And the setting must be cooperated with JP4 settings.



RS232	RS422/485
1-2	2-3
4-5	5-6
7-8	8-9
10-11	11-12

2.5.3. JP2: CF Card Priority

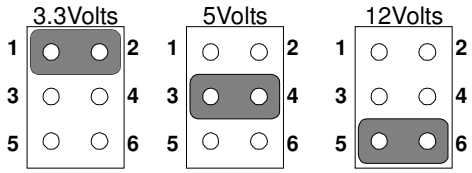
JP2 can be configured to operate CF Card Priority in Master/Slave mode.



Pin No.	Functions
1 Short 2	Master
2 Short 3	Slave

2.5.4. CON5: LCD Panel Voltage Select

CON5 can be configured to operate in 3.3Volts / 5Volts / 12Volts mode.



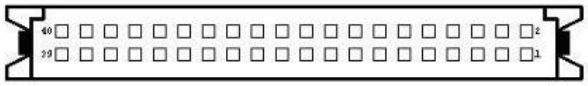
Pin No.	Functions
1 Short 2	3.3Volts Selected
3 Short 4	5Volts Selected
5 Short 6	12Volts Selected

2.6. Connectors and Pin Assignment

The table below lists the function of each of the board's connectors.

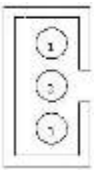
Label	Function	Note
CON3	LVDS LCD Output Connector	DF13-40DP-1.25V
JP3	Digital Panel Backlight Brightness Control	3x1 header, pitch 2.54mm
CON4	Inverter Connecter	7x1 header, pitch 2.54mm
PSKBM1	PS2 Keyboard/Mouse Connector	PS/2 Conn.
CON2	D-SUB Dual COM1/VGA Output	9pin COM/ 15pin VGA
CON7	Serial port COM2	9pin COM port
CON8	D-SUB Dual Serial Port COM3, COM4	9pin COM port
IDE1	IDE Connector	44Pin IDE Conn.
USB1/2	USB PIN HEADER	4x2 Pin Header
NB_FAN	FAN CONNECTOR	3x1 Pin Header
CPU FAN	FAN CONNECTOR	3x1 Pin Header
PANEL1	System Function Connector	5x2 header ,pitch 2.0mm
J2	Front Audio (Right)	1x2 header ,pitch 2.54mm
J3	Front Audio (Left)	1x2 header ,pitch 2.54mm
CON10	12V External Power(Yellow)	2x1 header, pitch 2.54mm
CON11	5V External Power(Red)	2x1 header, pitch 2.54mm
J4	5V/12V External Power	4x2 header ,pitch 2.54mm
CON6	Digital I/O	10 pin Digital I/O function
ATX12V1	12V DC Connector	2x2 Pin Connecter
CON9	12V DC Connector	4 Pin Connecter

2.6.1. CON3: LVDS Connector



Pin No.	SYMBOL	Pin No.	SYMBOL
1	LCDVDD	2	LVDS_LTX0-
3	LCDVDD	4	LVDS_LTX0+
5	LCDVDD	6	LVDS_LTX1-
7	GND	8	LVDS_LTX1+
9	GND	10	LVDS_LTX2-
11	GND	12	LVDS_LTX2+
13	GND	14	LVDS_LCLK-
15	GND	16	LCDS_LCLK
17	GND	18	NC
19	GND	20	NC
21	GND	22	LVDS_UTX0-
23	GND	24	LVDS_UTX0+
25	GND	26	LVDS_UTX1-
27	GND	28	LVDS_UTX1+
29	GND	30	LVDS_UTX2-
31	GND	32	LVDS_UTX2+
33	GND	34	LVDS_UCLK-
35	GND	36	LVDS_UCLK
37	GND	38	NC
39	GND	40	NC

2.6.2 JP3: Digital Panel Backlight Brightness Control

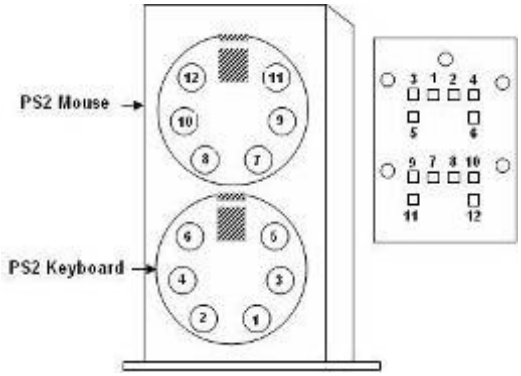


Pin No.	SYMBOL
1	VCC
2	Black Light Control
3	GND

2.6.3 CON4: Digital Panel Backlight Control

Pin No.	SYMBOL
1	+12V
2	+12V
3	+12V
4	GND
5	Black Light Control
6	GND
7	Black Light EN 5V

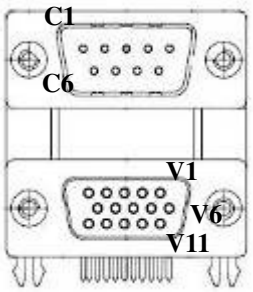
2.6.4 PSKBM1: PS2 Keyboard/Mouse Connector



PS/2 Keyboard		PS/2 Mouse	
Pin No.	SYMBOL	Pin No.	SYMBOL
1	KDATA	11	MDATA
2	NC	12	NC
3	Ground	13	Ground
4	VCC	14	VCC
5	KCLK	15	MCLK
6	NC	16	NC

2.6.5 CON2: D-SUB Dual Output

The serial port COM1 is option series port for RS232 / RS422 / RS485. It is for industrial application.



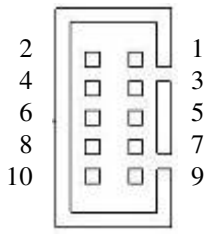
Up: 9(Male)

Down: 15(Female)

Pin No.	SYMBOL	Pin No.	SYMBOL
C1	DCD4/485TXRX-	V1	R
C2	SRD4/485TXRX+	V2	G
C3	STD4/422RX+	V3	B
C4	DTR4/422RX-	V4	NA
C5	GND	V5	GND
C6	NDSRA	V6	GND
C7	NRTSA	V7	GND
C8	NCTSA	V8	GND
C9	NRIA	V9	VCC
		V10	GND
		V11	NA
		V12	DAC_SDAT0
		V13	3VHSYNC0
		V14	3VVSYNC0
		V15	DAC_SCL0

2.6.6 CON7: Serial port COM2

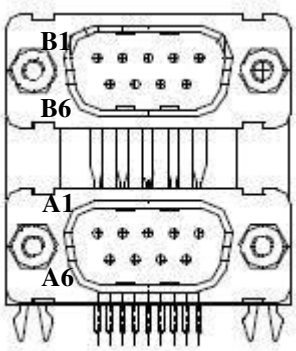
The serial port COM2, which is Winbond I/O support, is RS232 only.



Pin	SYMBOL	Pin	SYMBOL
2	NDSR1A	1	NDCD1A
4	NRTS1A	3	NRXD1A
6	NCTS1A	5	NTXD1A
8	NRI1A	7	NDTR1A
10	GND	9	GND

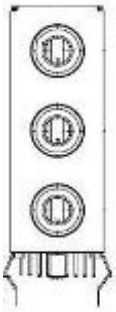
2.6.7 CON8: D-SUB Dual Serial Port

The serial port COM3/4, RS232 only, from A1 to A9 is COM3, and B1 to B9 is COM4, which is supported by Fintek.

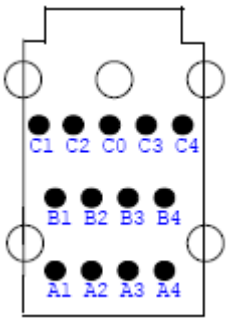


Pin No.	SYMBOL	Pin No.	SYMBOL
A1	FK_NDCD1	B1	FK_NDCD2
A2	FK_NSIN1	B2	FK_NSIN2
A3	FK_NSOUT1	B3	FK_NSOUT2
A4	FK_NDTR1	B4	FK_NDTR2
A5	GND	B5	GND
A6	FK_NDSR1	B6	FK_NDSR2
A7	FK_NRTS1	B7	FK_NRTS2
A8	FK_NCTS1	B8	FK_NCTS2
A9	FK_NRI1	B9	FK_NRI2

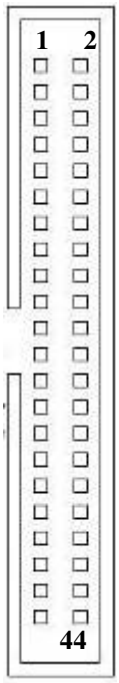
2.6.8 AUDIO401: Audio Jack (Pin-header)



Pin	SYMBOL
Color	Signal
Blue	Line In
Green	Line Out
Pink	Microphone In
Pin-Header	
C0~C4	Line in
B1~B4	Line out
A1~A4	Mic in

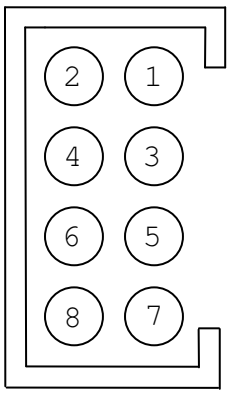


2.6.9 IDE1: 44 pins IDE Connector



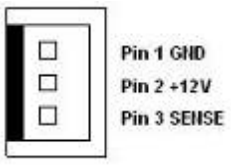
Pin No.	SYMBOL	Pin No.	SYMBOL
1	RESET	2	GND3
3	DD7	4	DD8
5	DD6	6	DD9
7	DD5	8	DD10
9	DD4	10	DD11
11	DD3	12	DD12
13	DD2	14	DD13
15	DD1	16	DD14
17	DD0	18	DD15
19	GND1	20	NC
21	DREQ	22	GND4
23	DIOW#	24	GND5
25	DIOR#	26	GND6
27	IO_RDYD	28	CSEL
29	DACK#	30	GND7
31	IRQ	32	IOCS16#
33	DA1	34	CBL_ID#
35	DA0	36	DA2
37	DCS#1	38	DCS#3
39	DASP#	40	GND8
41	+5V1	42	+5V2
43	GND	44	NC

2.6.10 USB1/2: USB PIN HEADER

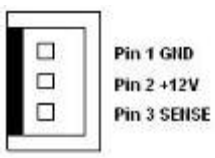


USB1/2			
Pin	SYMBOL	Pin	SYMBOL
2	USBVCC	1	USBVCC
4	USB_P6-	3	USB_P7-
6	USB_P6+	5	USB_P7+
8	GND	7	GND

2.6.11 NB_FAN1/CPU_FAN1: FAN CONNECTOR

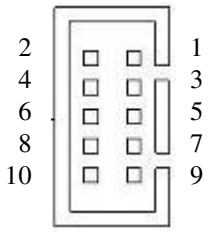


NB_FAN



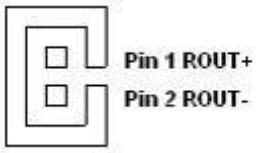
CPU_FAN

2.6.12 PANEL1: Front Panel System Function Connector

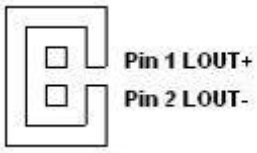


Pin	SYMBOL	Pin	SYMBOL
2	HD_LED+	1	PW_LED+
4	HD_LED-	3	PW_LED-
6	RT_BT1	5	PW_BT1
8	RT_BT2	7	PW_BT2
10	5VSB	9	RSEV

2.6.13 J2/J3: Front Audio

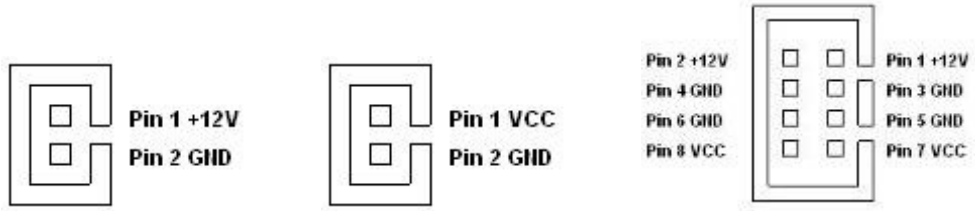


J2



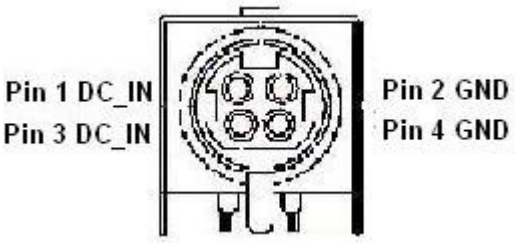
J3

2.6.14 CON10/CON11/J4: External Power

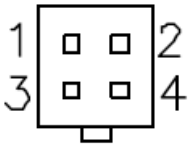


CON10 **CON11** **J4**

2.6.15 PWIN1: DC Jack

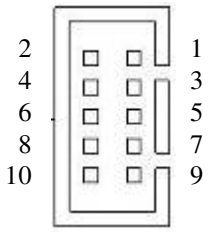


2.6.16 ATX12V1: 12V DC Connector



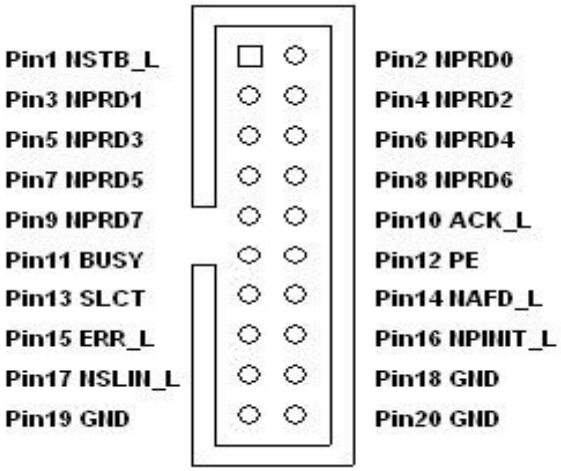
Pin	SYMBOL
1	Ground
2	Ground
3	+12V
4	+12V

2.5.17 Digital I/O Connector



Pin	SYMBOL	Pin	SYMBOL
2	Vcc	1	GND
4	Out1	3	Out3
6	Out0	5	Out2
8	IN1	7	IN3
10	IN0	9	IN2

2.5.18 Parallel Port Box Header



LPT1

CHAPTER 3

Graphic Driver Installation

This chapter offers information about the chipset software Installation utility

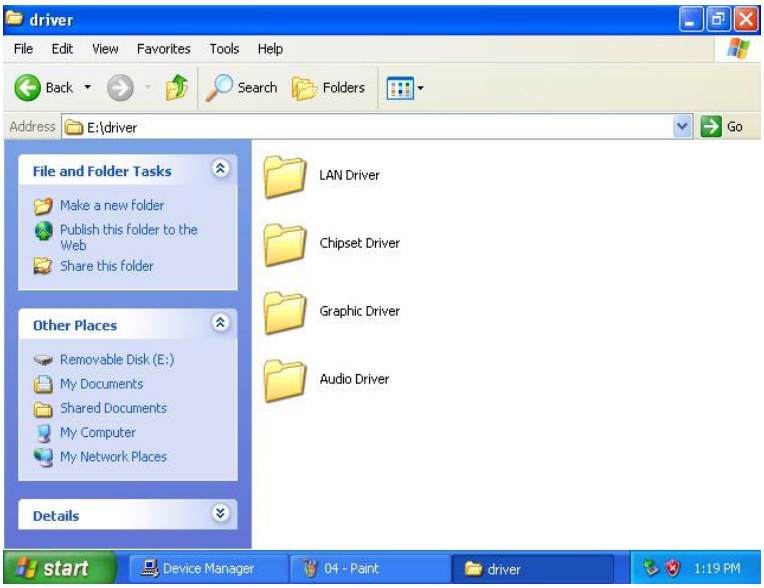
- Installation of Graphic Driver
- Panel Resolution Setting

Chapter 3 Graphic Driver Installation

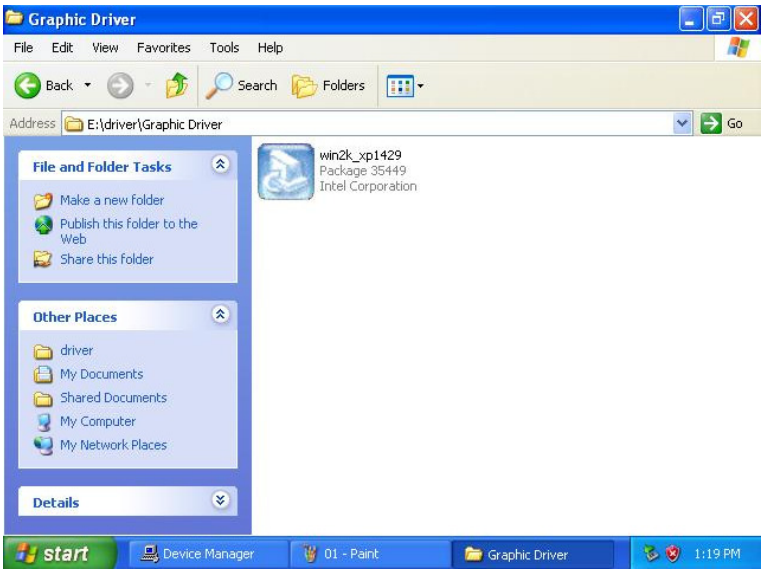
3.1. Standard CMOS Feature

IA70 Motherboard is equipped with Intel 945GSE / ICH7M Companion Device. The Intel Graphic Drivers should be installed first, and it will enable “Video Controller (VGA compatible). Follow the instructions as below to complete the system’s installation. You will quickly complete the total installation.

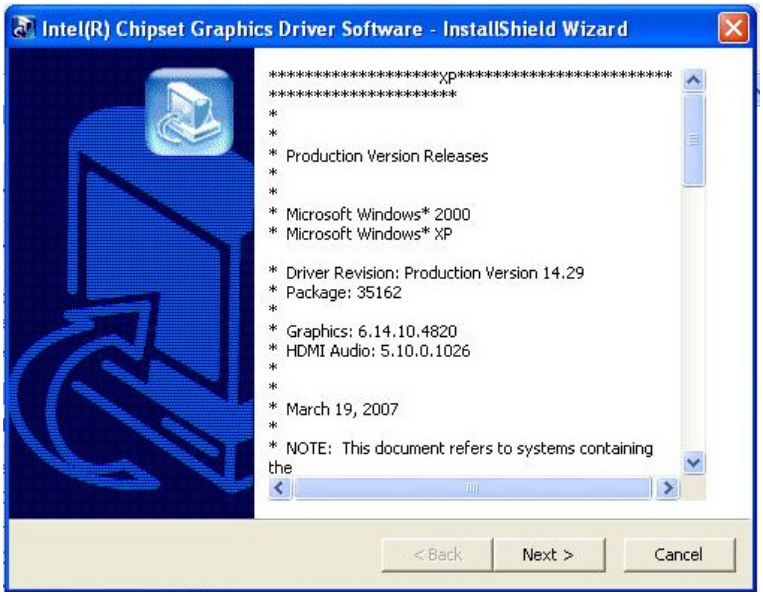
Step.1. Insert the CD that comes with the accessories of the Motherboard into the CD-ROM. Open the file folder named “Graphic Driver “.



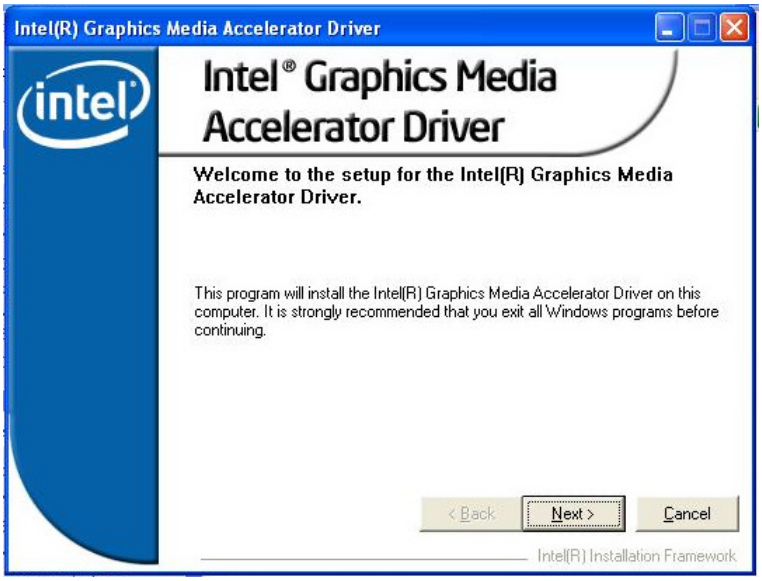
Step.2. Click on “win2K_xp1429” to start the setup procedure.



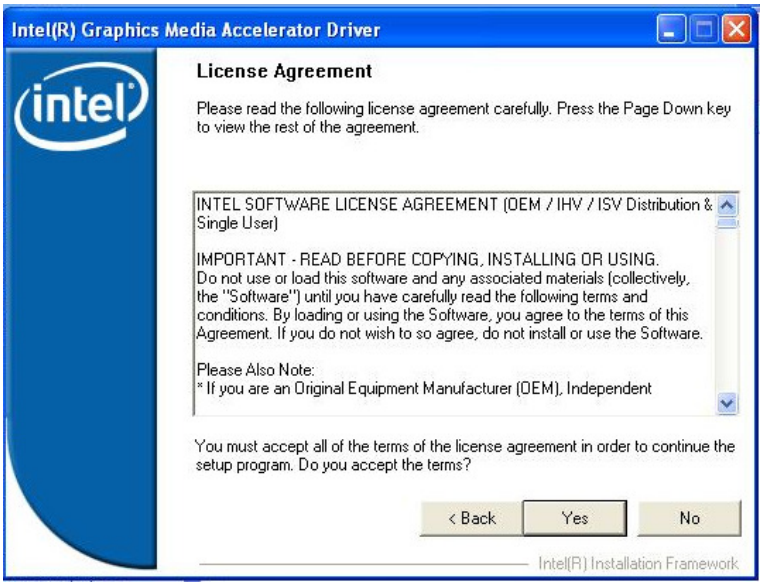
Step.3. Click on “Next“ to install the Graphic Driver.



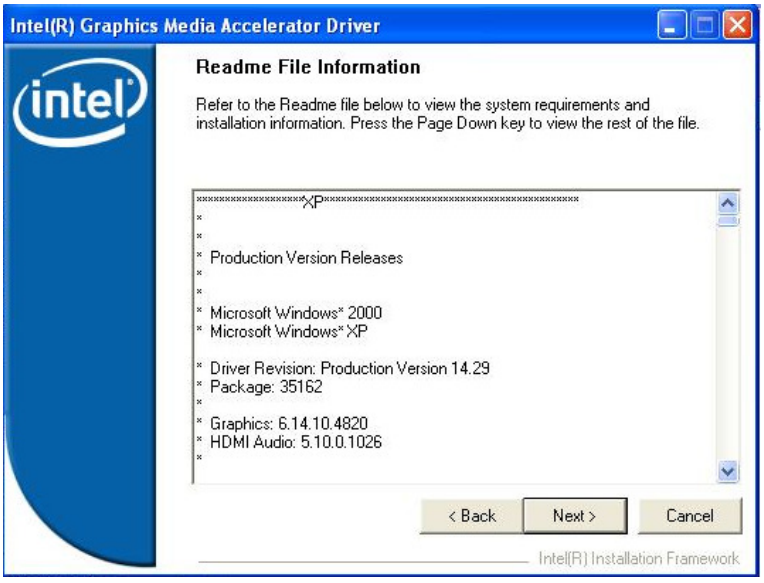
Step.4. Click on “Next “to install Driver.


Intel(R) Graphics Media Accelerator Driver
intel
Intel® Graphics Media Accelerator Driver
Welcome to the setup for the Intel(R) Graphics Media Accelerator Driver.
This program will install the Intel(R) Graphics Media Accelerator Driver on this computer. It is strongly recommended that you exit all Windows programs before continuing.
< Back
Next >
Cancel
Intel(R) Installation Framework

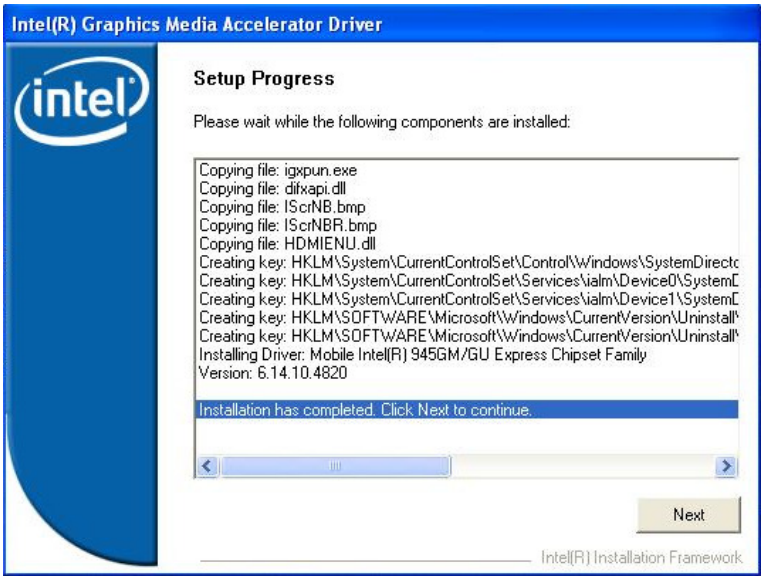
Step.5. Click on “Yes “to accept all of the terms of the License Agreement.


Intel(R) Graphics Media Accelerator Driver
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Framework

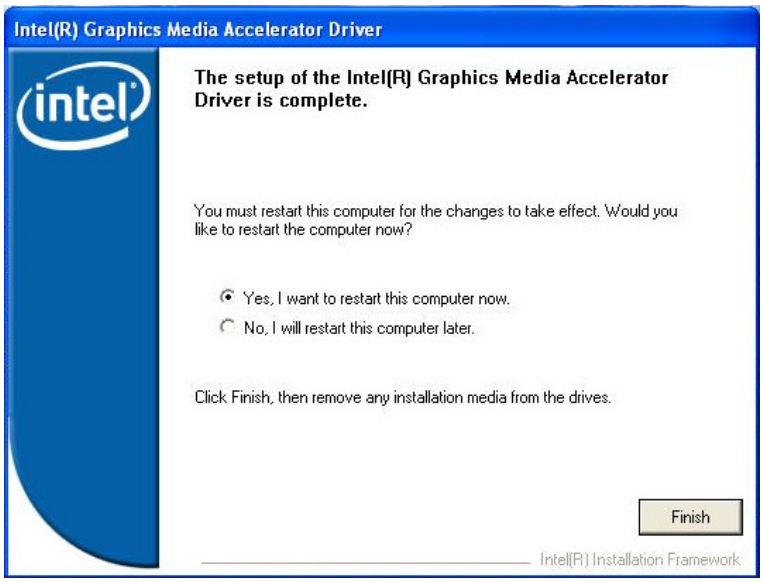
Step.6. Click on “Next “to install Driver.


Intel(R) Graphics Media Accelerator Driver
Readme File Information
Refer to the Readme file below to view the system requirements and installation information. Press the Page Down key to view the rest of the file.
Production Version Releases
Microsoft Windows* 2000
Microsoft Windows* XP
Driver Revision: Production Version 14.29
Package: 35162
Graphics: 6.14.10.4820
HDMI Audio: 5.10.0.1026
< Back
Next >
Cancel
Intel(R) Installation Framework

Step.7. Click on “Next “ to install Driver.

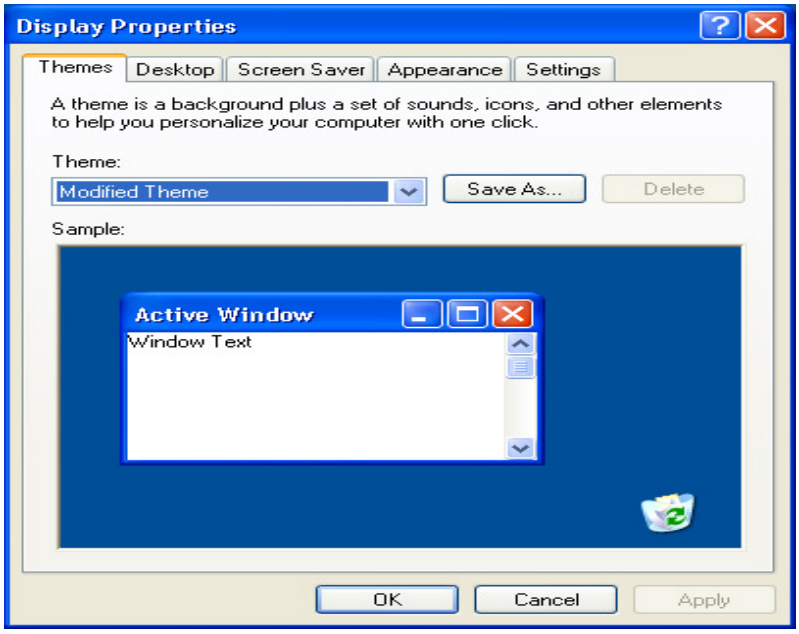


Step.8. Click on “Yes, I want to restart this computer now“, and proceed.

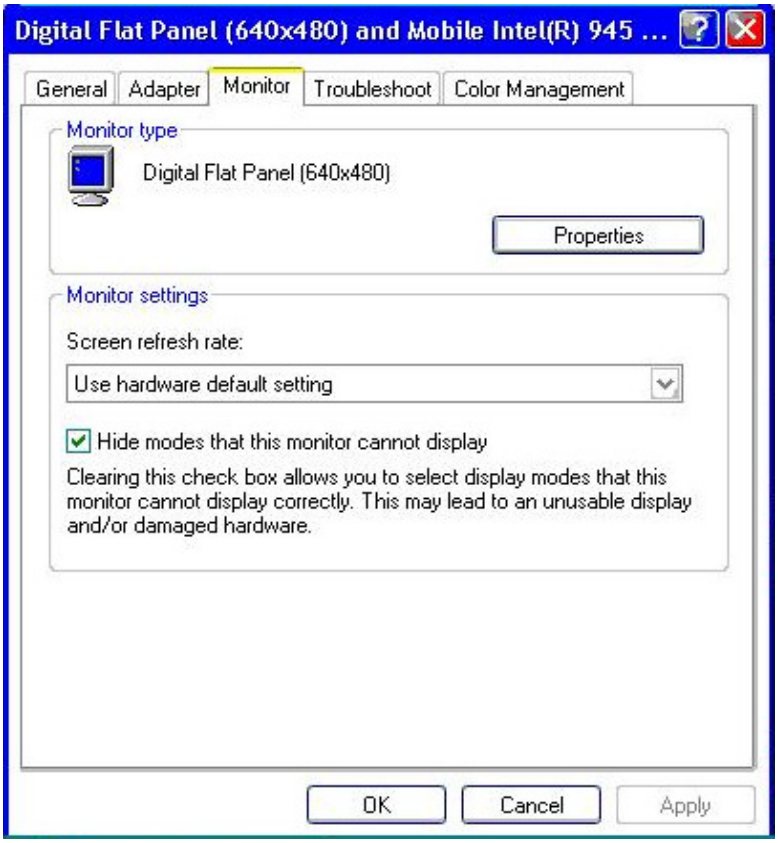

Intel(R) Graphics Media Accelerator Driver
The setup of the Intel(R) Graphics Media Accelerator Driver is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel(R) Installation Framework

3.2. Panel Resolution Setting

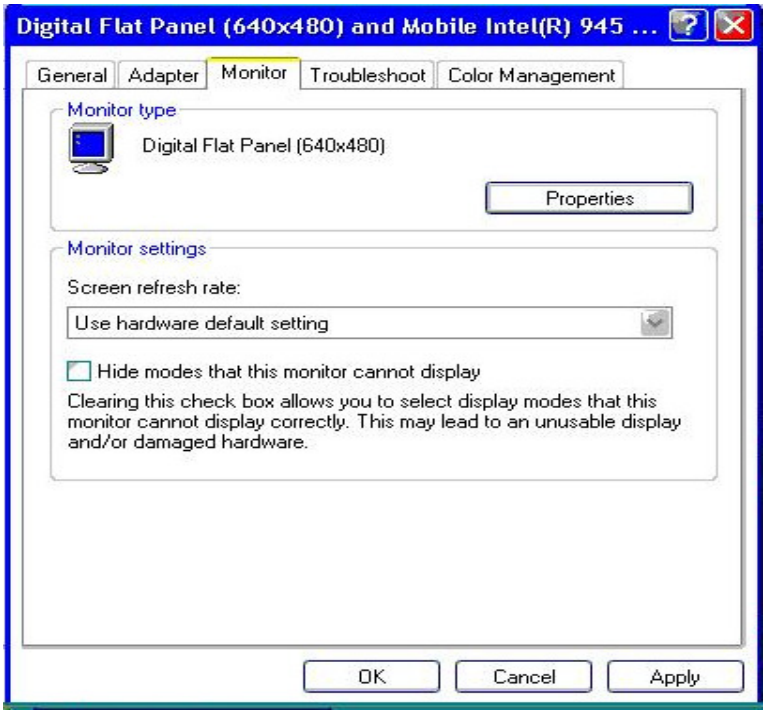
Step.1. Right-click the mouse on the desktop, and then click the “Properties”.
Step.2. In the Display “Properties” window, click the “Settings” tab.



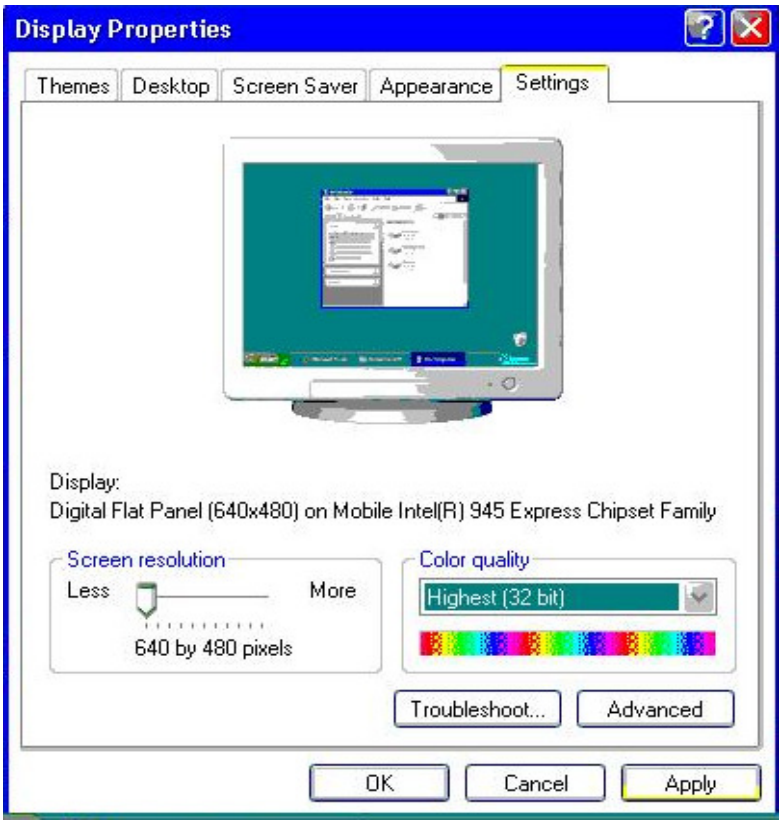
Step.3. Click on the “Monitor” tab.



Step.4. Do not tick on the “Hide modes that this monitor cannot display” tab to remove this option.



Step.5. Click on the “Setting”, then you could choose 32bit color qualify.



CHAPTER 4

Chipset Driver Installation

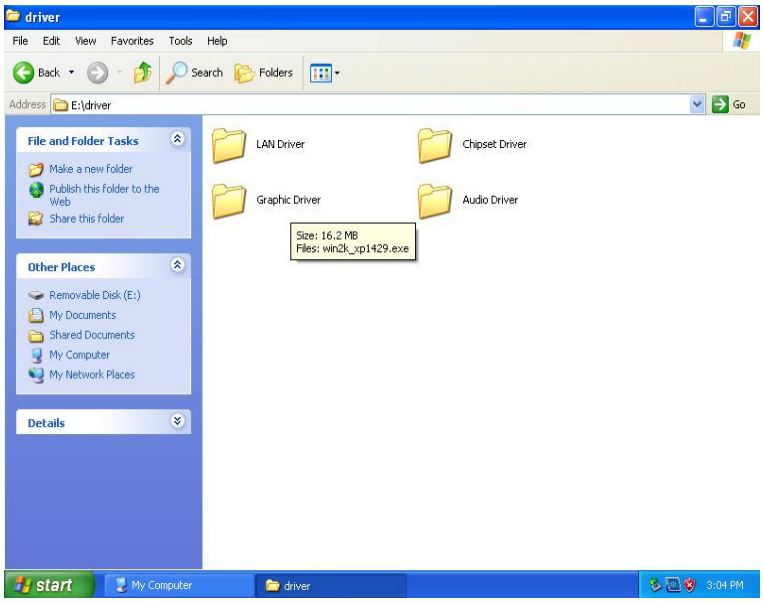
This chapter offers information about the chipset software Installation utility

- Installation of the Chipset Driver
- Further information

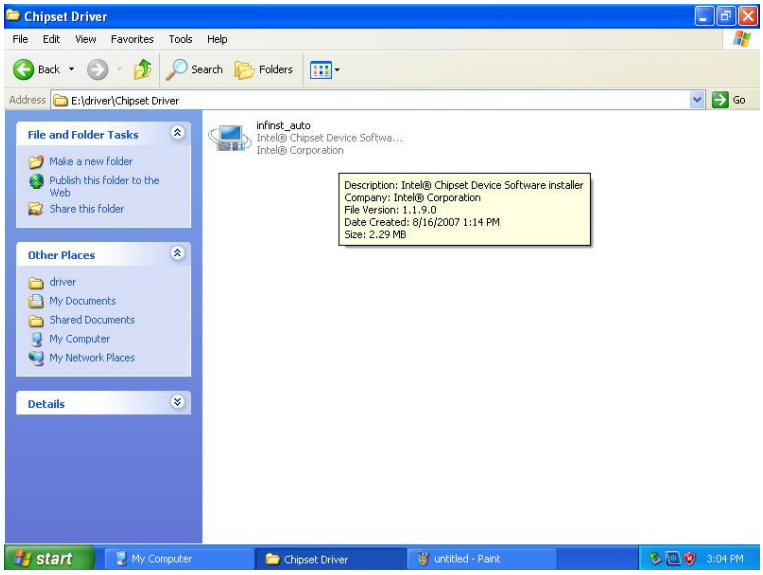
Chapter 4 Chipset Driver Installation

4.1. Standard CMOS Features

Setp.1. Insert the CD that comes with the accessories with of the motherboard into the CD-ROM. Open the file folder named "Chipset Driver".



Setp.2. Click on the "infinst_auto.exe"to install the driver.



Setp.3. Click on "Next" to install the driver.

Intel® Chipset Device Software
Intel® Chipset Device Software
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all Windows* programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Setp.4. Click on "Yes " to accept all terms of the License Agreement

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Setp.5. Click on “Next“ to install the driver.

Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
****
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 8.3.0.1013
* Target Chipset#: Q33/G33/G31/P35
* Date: March 05 2007
****
< Back
Next >
Cancel
Intel® Installation Framework

Setp.6. Click on “Next“ to install the driver.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
Please wait while the following setup operations are performed:
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
Version: 8.2.0.1008
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
Version: 8.2.0.1008
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
Version: 8.2.0.1008
Installing Driver: Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
Version: 8.2.0.1008
Click Next to continue.
Next
Intel® Installation Framework

Step.7. Click on “Yes, I want to restart this computer now“, to proceed.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
intel
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

CHAPTER 5

Ethernet Driver Installation

This chapter offers information about the Ethernet software installation utility.
Sections include:

- Introduction
- Installation of the Ethernet Driver

Chapter 5 Ethernet Driver Installation

5.1. Introduction

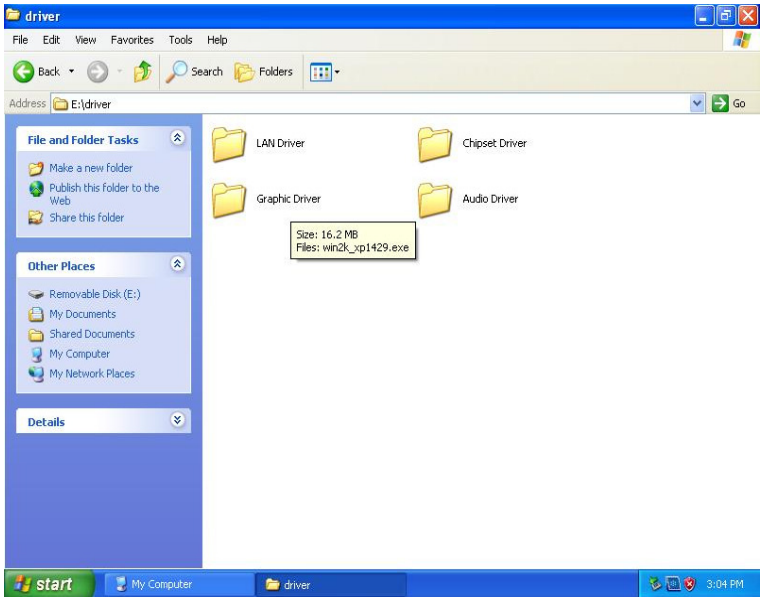
IA70 Motherboard is equipped with the Realtek RTL8111B Gigabit Ethernet controller combines a triple-speed IEEE 802.3 compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver, PCI Express bus controller, and embedded memory inside. With state-of-the-art DSP technology and mixed-mode signal technology, it offers high-speed transmission over CAT 5 UTP cable or CAT 3 UTP (10Mbits/s only) cable. Functions such as Crossover Detection & Auto-Correction, polarity correction, adaptive equalization, cross-talk cancellation, echo cancellation, timing recovery, and error correction are implemented to provide robust transmission and reception capability at high speed conditions.

The device supports the PCI Express 1.0a bus interface for host communications with power management and is compliant with the IEEE 802.3u specification for 10/100Mbits/s Ethernet and the IEEE 802.3ab specification for 1000 Mbits/s Ethernet. It also supports an auxiliary power auto-detect function, and will auto-configure related bits of the PCI power management registers in PCI configuration space.

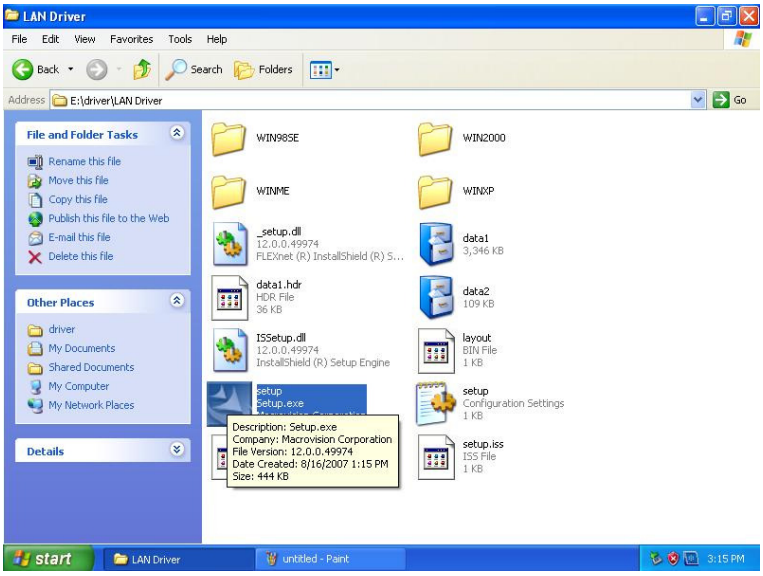
5.2. Installation of Ethernet Driver

The Users must to make sure which operating system you are using now under the IA70 Motherboard's infrastructure before installing the Ethernet drivers. Follow the steps as below to complete the installation of the Realtek RTL8111B LAN drivers' program. You will quickly complete the installation.

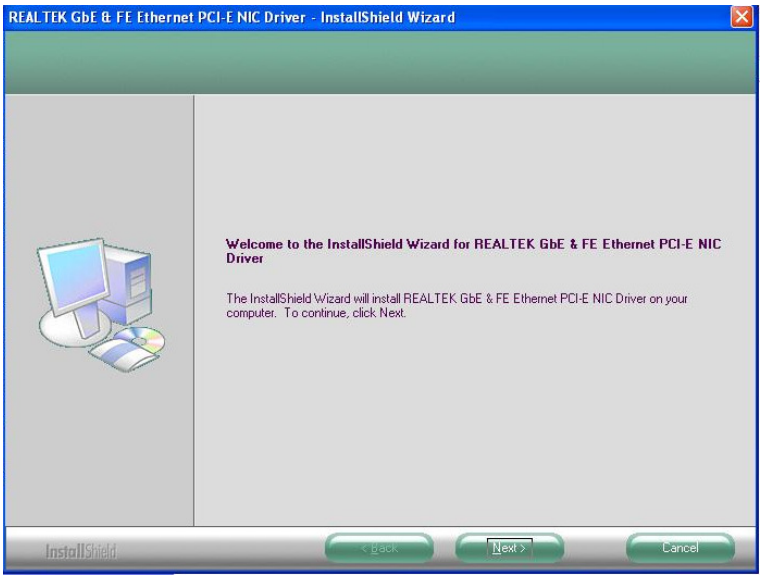
Step.1. Insert the CD that comes with the accessories of the motherboard into the CD-ROM. Open the file folder named "LAN Driver".



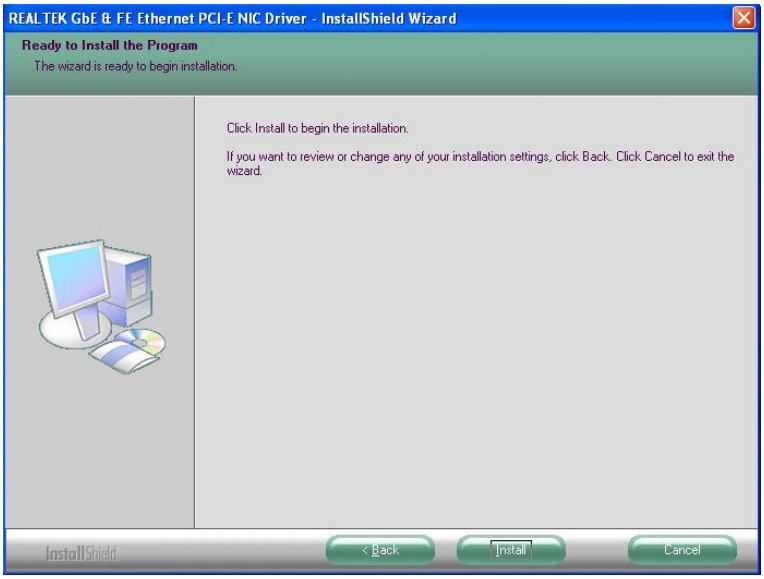
Step.2 Click on "Setup" to start the setup procedure.



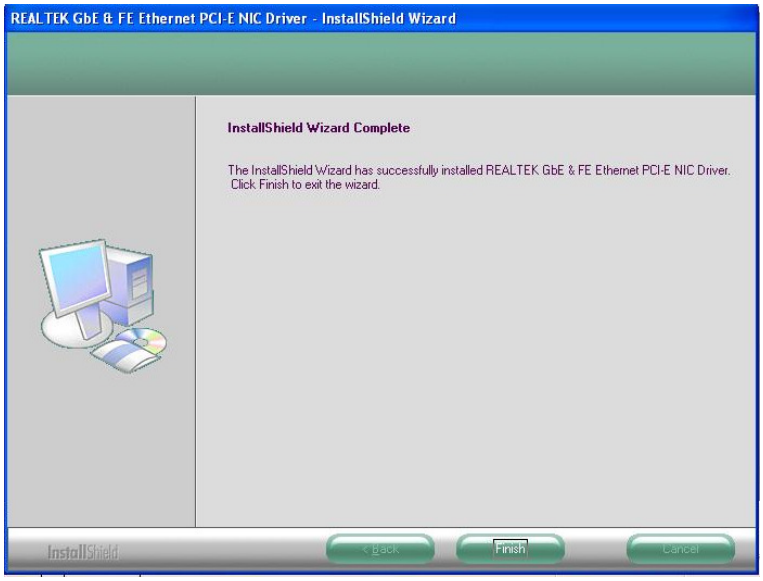
Step.3. Click on “Next“ to install the driver.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
Welcome to the InstallShield Wizard for REALTEK GbE & FE Ethernet PCI-E NIC Driver
The InstallShield Wizard will install REALTEK GbE & FE Ethernet PCI-E NIC Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Step.3. Click on “Install“ to install the driver.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Setp.3. Click on “Finish“ to finish the installation.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed REALTEK GbE & FE Ethernet PCI-E NIC Driver. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

CHAPTER 6

Audio Driver Installation

This chapter offers information about the Audio software installation utility.
Sections include:

- Introduction
- Installation of the Audio Driver

Chapter 6 Audio Driver Installation

6.1 Introduction

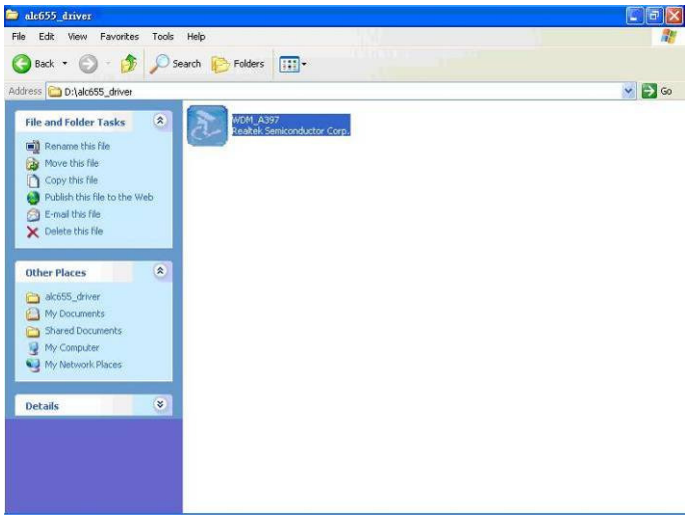
The IA70 Motherboard is equipped with the ALC655 is a 16-bit, full-duplex AC'97 Rev. 2.3 compatible six-channel audio CODEC designed for PC multimedia systems, which are including host/soft audio and AMR/CNR-based designs..

The ALC655 CODEC provides three pairs of stereo outputs with 5-bit volume control, a mono output, and multiple stereo and mono inputs, along with flexible mixing, gain, and mute functions to provide a complete integrated audio solution for PCs.

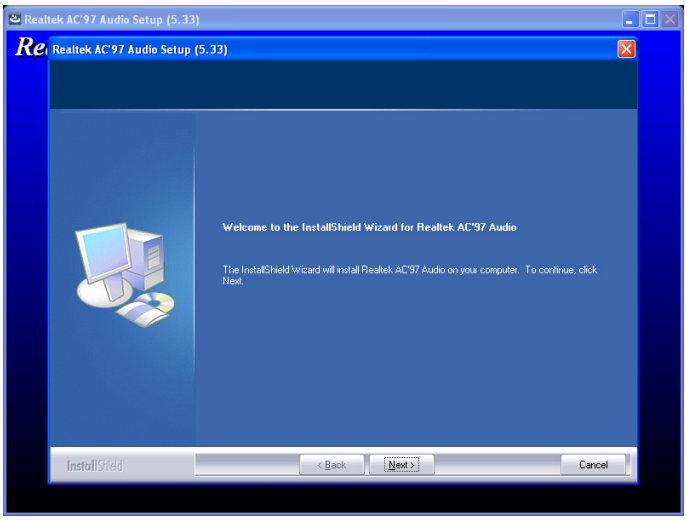
6.2 Installation of Audio Driver

The users must to make sure which operating system you are using in the IA70 Motherboard before installing the Audio drivers. Follow the steps as below to complete the installation of the Realtek ALC655 Audio drivers. You will quickly complete the installation.

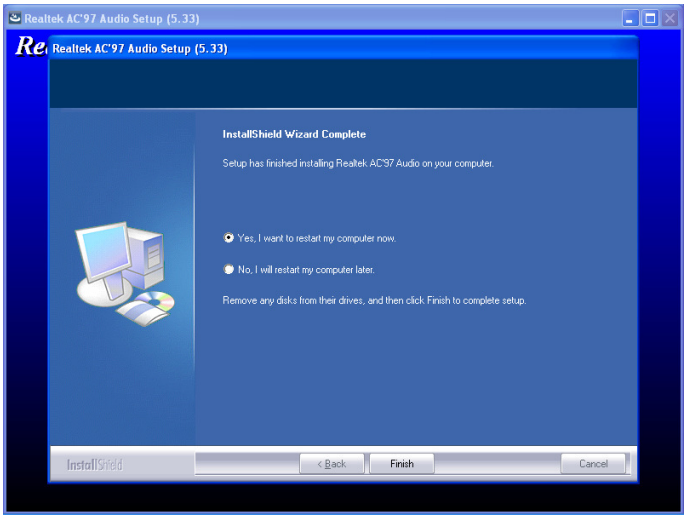
Step.1. Insert the CD that comes with the accessories of the motherboard into the CD-ROM. Open the file folder named “alc655_driver” and click on “Setup.exe” to start the setup procedure.



Step.2. Click on “Next“ to install the driver.


Realtek AC'97 Audio Setup (5.33)
Realtek AC'97 Audio Setup (5.33)
Welcome to the InstallShield Wizard for Realtek AC'97 Audio
The InstallShield Wizard will install Realtek AC'97 Audio on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Step.3. Click on “Yes, I want to restart my computer now” to finish the installation.


Realtek AC'97 Audio Setup (5.33)
Realtek AC'97 Audio Setup (5.33)
InstallShield Wizard Complete
Setup has finished installing Realtek AC'97 Audio on your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

CHAPTER 7

AMI BIOS Setup

This chapter describes how to set up the BIOS configuration

Chapter 7 AMI BIOS SETUP

7.1 Starting Setup

Your computer comes with a hardware configuration program which called BIOS Setup that allows you to view and set up the system parameters.

The BIOS (Basic Input / Output System) is a layer of the software called 'firmware' which translates instructions from software (such as the operating system) into instructions that allow the computer hardware to understand the software programs. The BIOS settings also identify installed devices and establish many special features.

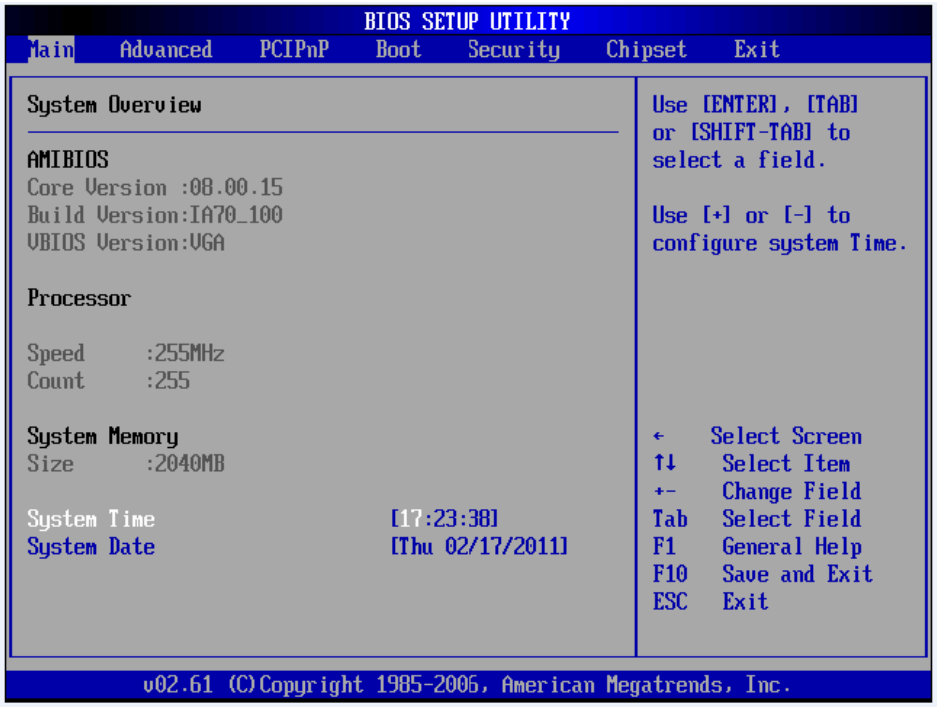
➢ ENTERING BIOS SETUP

You can access the BIOS program just after you turn on your computer. Just press the "DEL" key when the following prompt appears:

Press <DEL> to enter Setup.

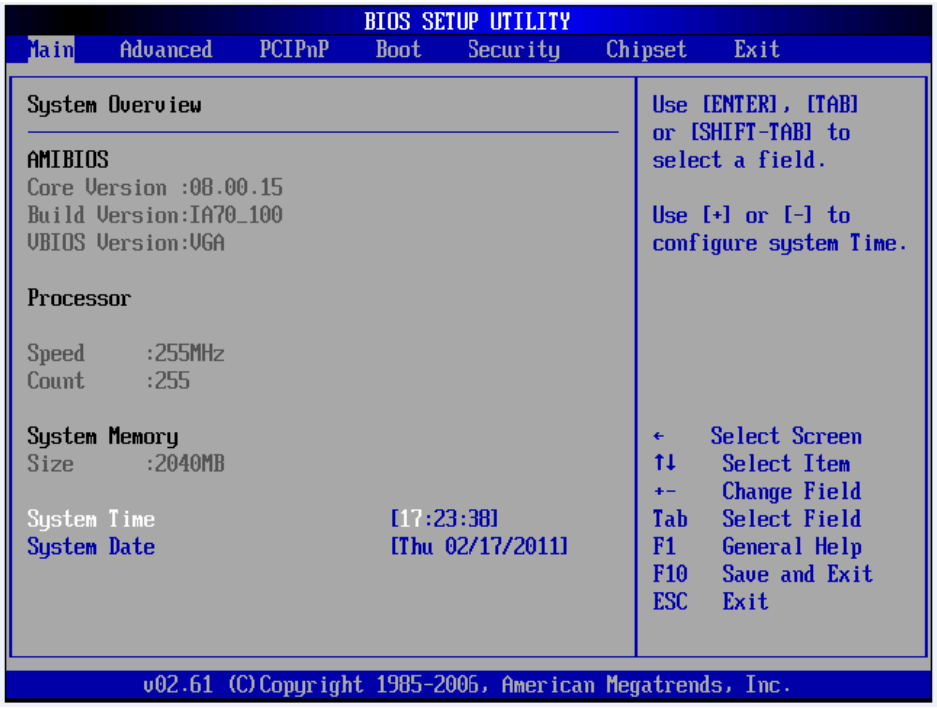
When you press <DEL> to enter the BIOS Setup image, the system interrupts the Power-On Self-Test (POST).

When you first enter the BIOS Setup Utility, you will enter the Main setup image. You can always return to the Main setup image by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup image is shown as below.



The Main BIOS setup image has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. On the contrary, options in blue can be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

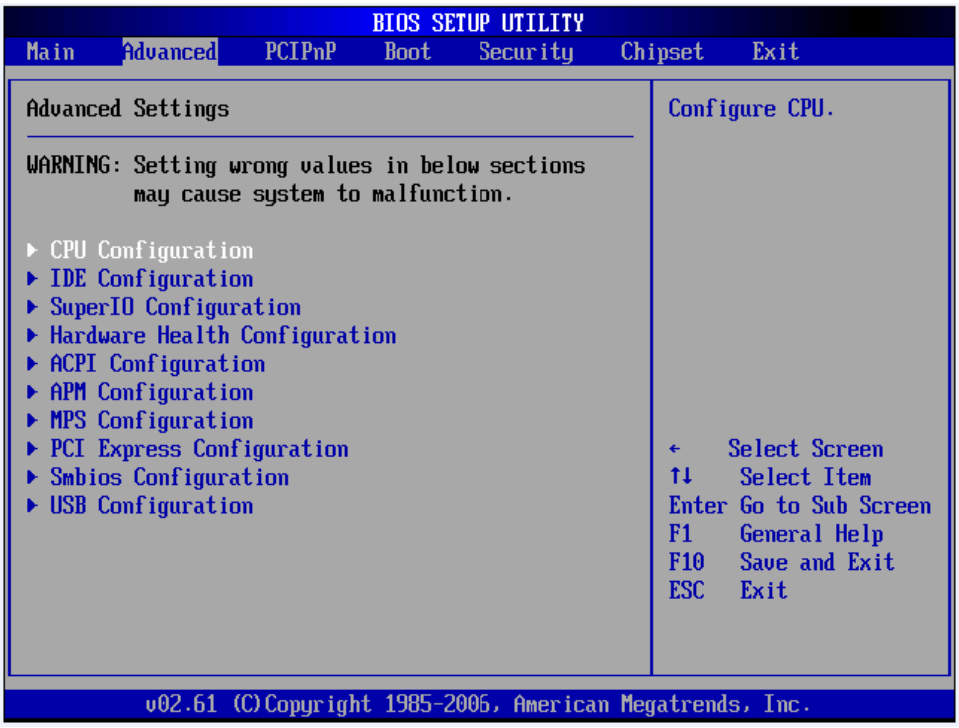
7.2 System Overview



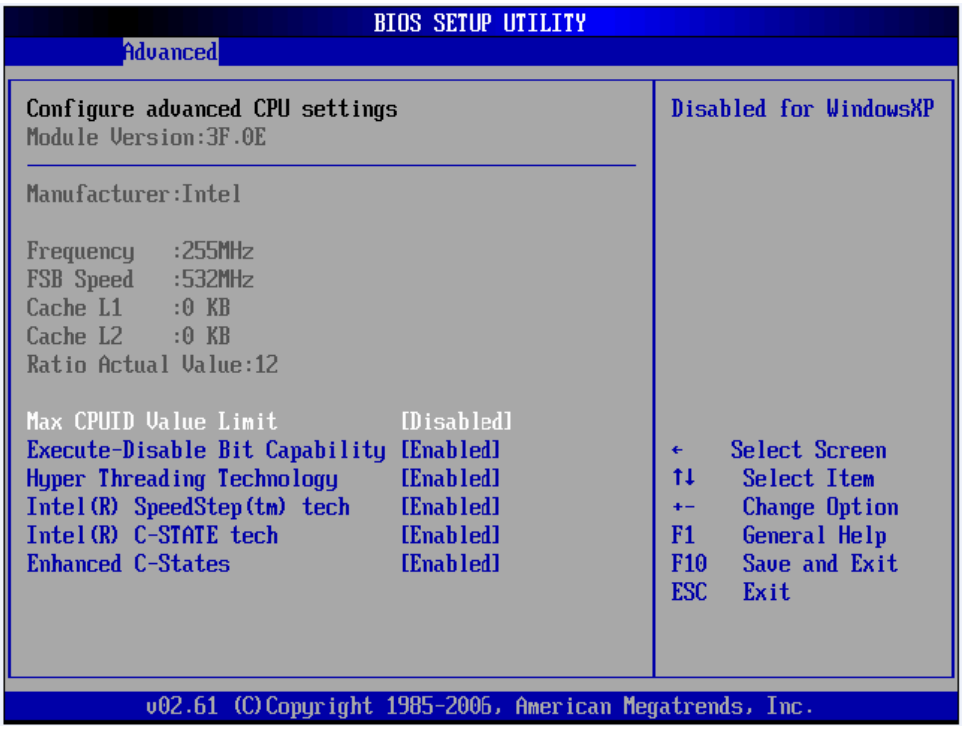
Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format

7.3 Advanced Setting

CPU Configuration

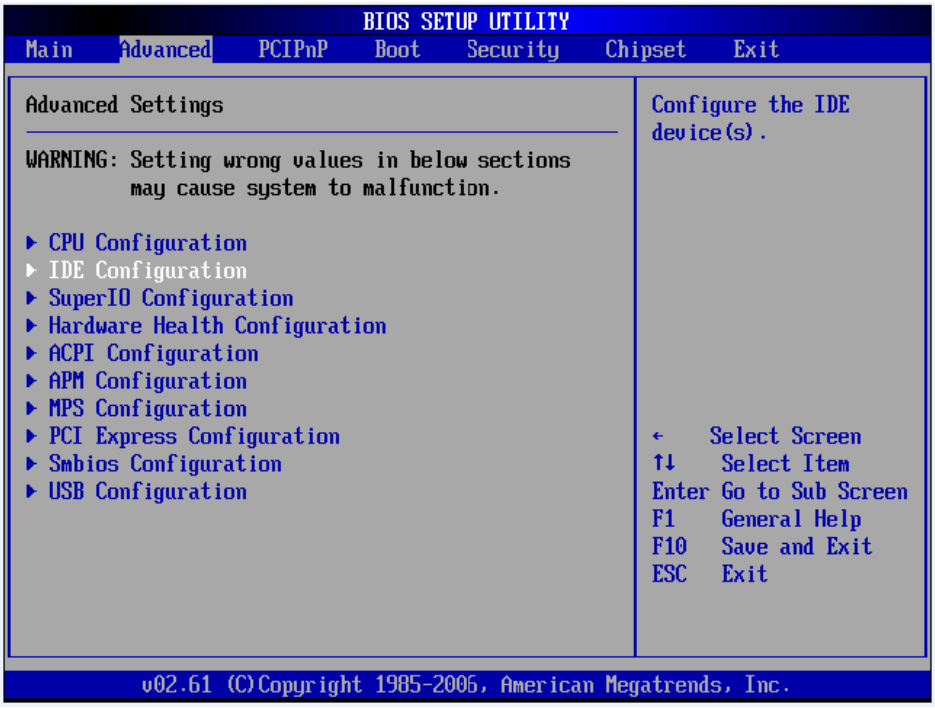


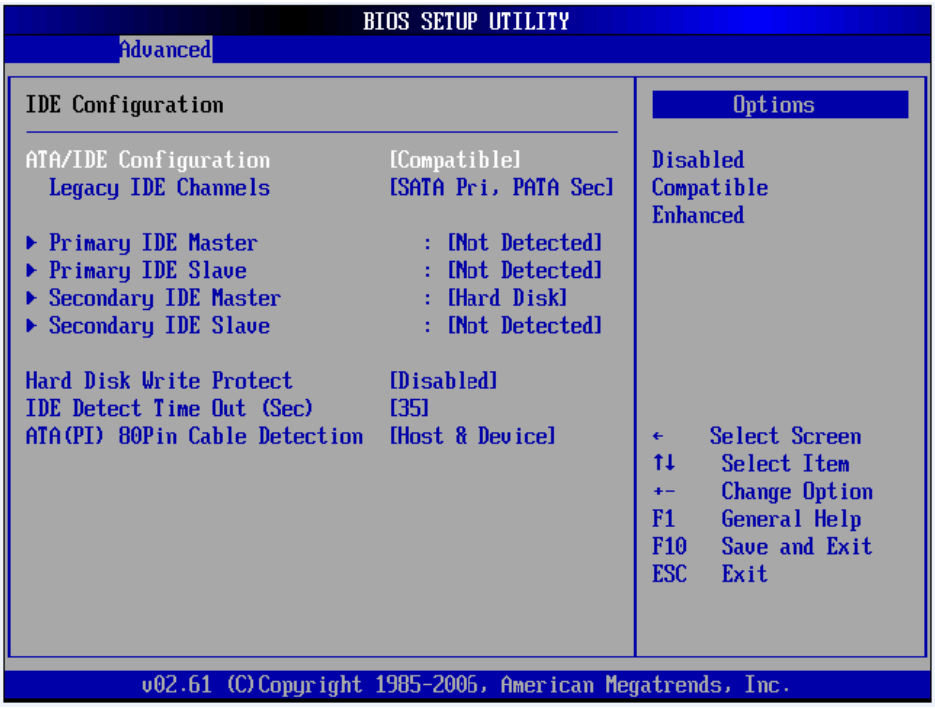
Press “Enter” to the CPU Configuration setting.



CPU configuration is different from writing an executable program. It is equivalent to set up dip switches or jumpers on a circuit board. The executing program has no way to change under this configuration.

IDE/SATA Configuration





IDE Channel I/O Master

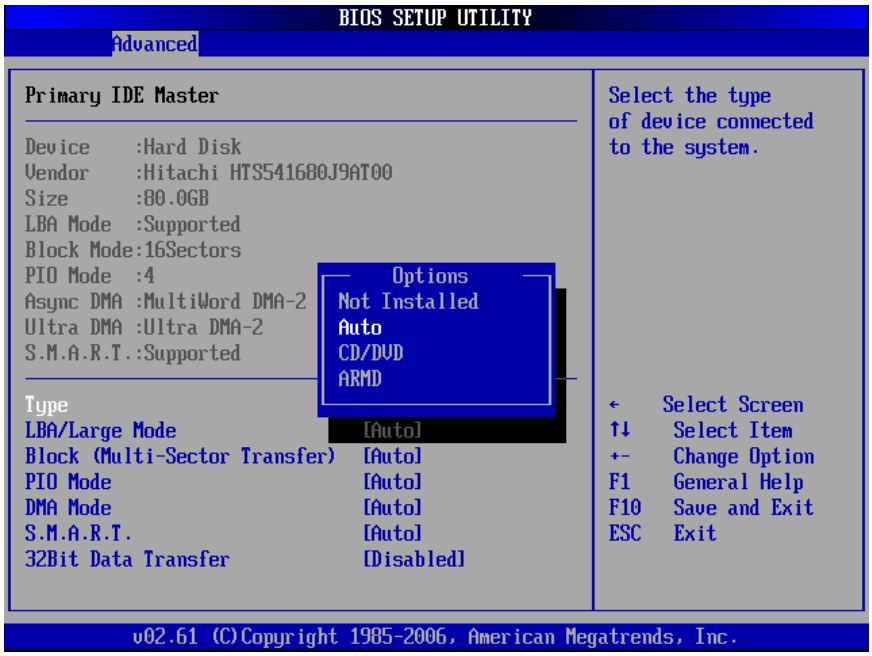
While entering setup image, the BIOS automatically detects the presence of IDE device. This displays the status of IDE device auto-detection.

IDE Channel I/O Slave

While entering setup image, the BIOS automatically detects the presence of IDE device. This displays the status of IDE device auto-detection.

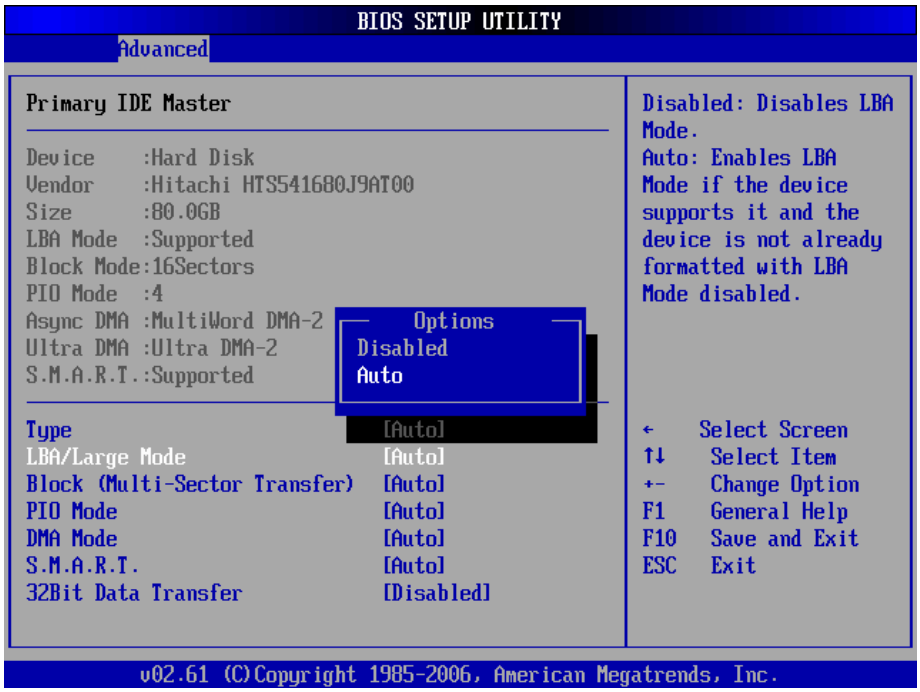
Type

Select the type of IDE drive. Setting to Auto allows automatic selection of the appropriate IDE device type. Select CD-ROM if you are specifically configuring a CD-ROM drive. Select ARMD (ATAPI Removable Media Device) if your device either is ZIP, LS-120, or MO drive. The options: [Not Installed], [Auto], [CD/DVD], [ARMD].



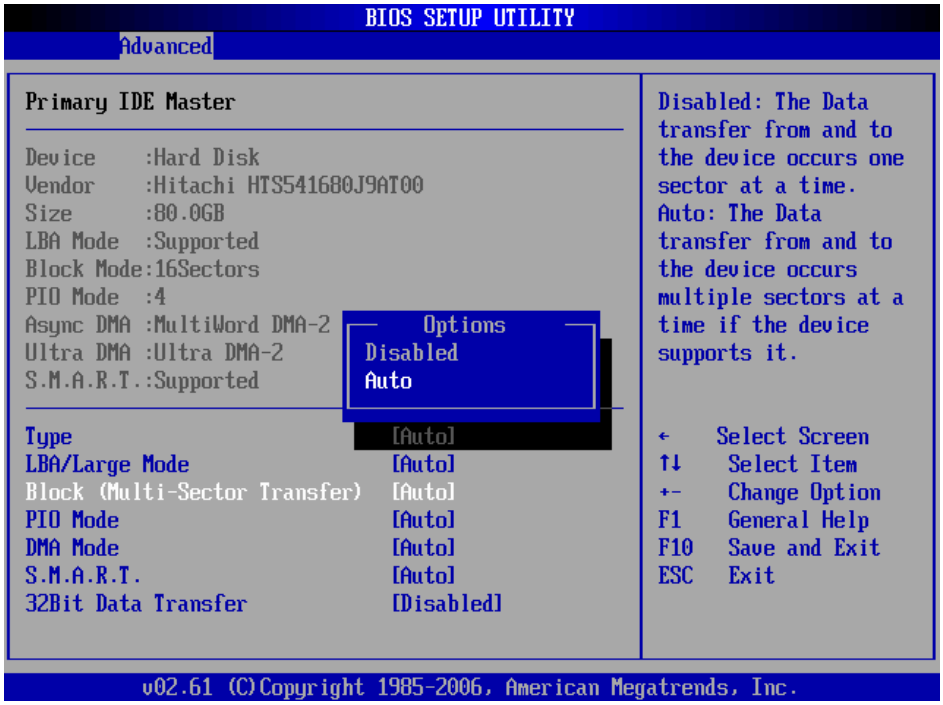
LBA/Large Mode

Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads and Sectors. The options: [Disabled], [Auto].



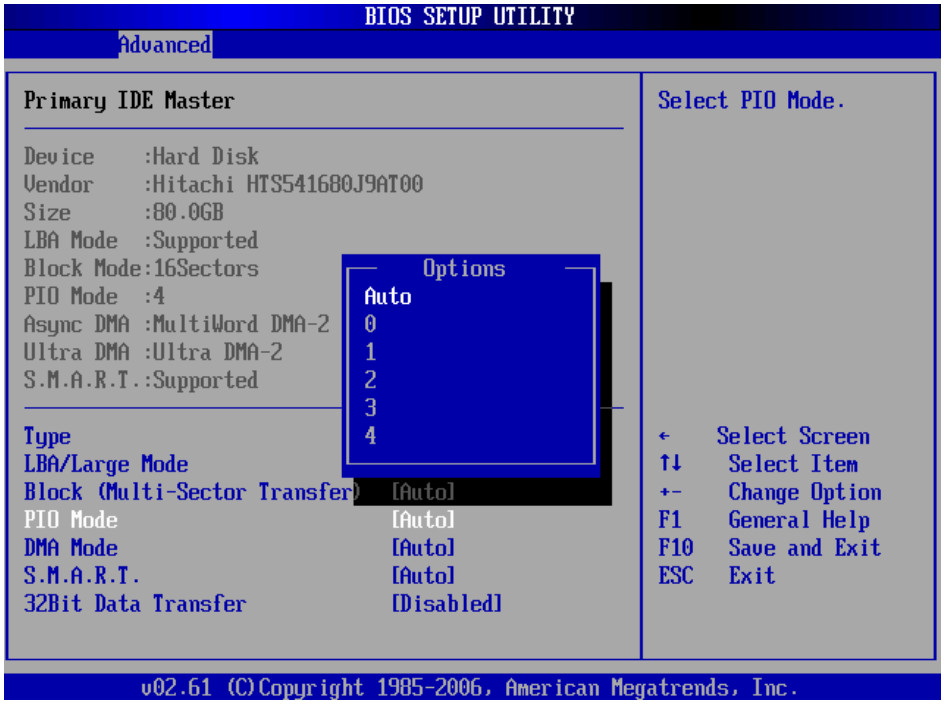
Block (Multi-Sector Transfer)

"Controls" are enabled of multi-sector transferring, if supported. The options: [Disabled],[Auto].



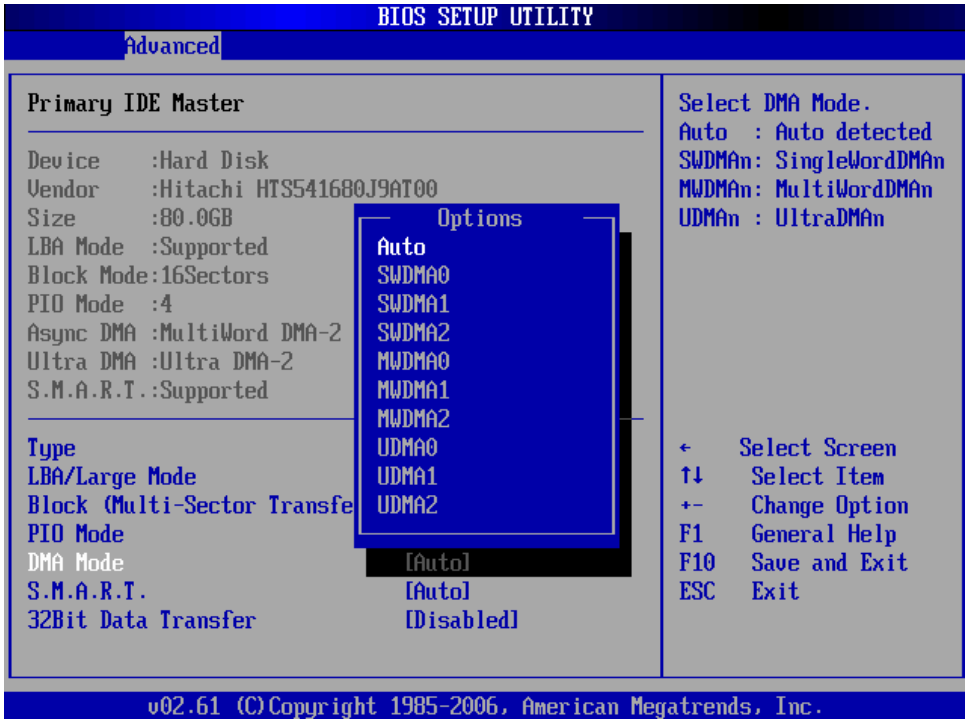
PIO Mode

It indicates the type of PIO (Programmed Input/Output).



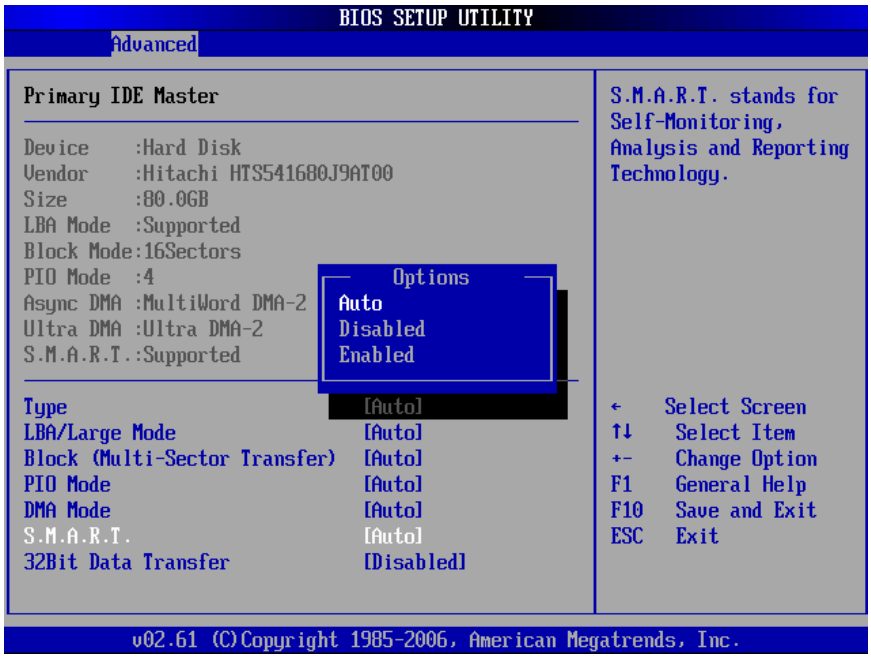
DMA Mode

It indicates the type of Ultra DMA. The options: [Auto], [SWDMan], [MWDMAn], [UDMAn].



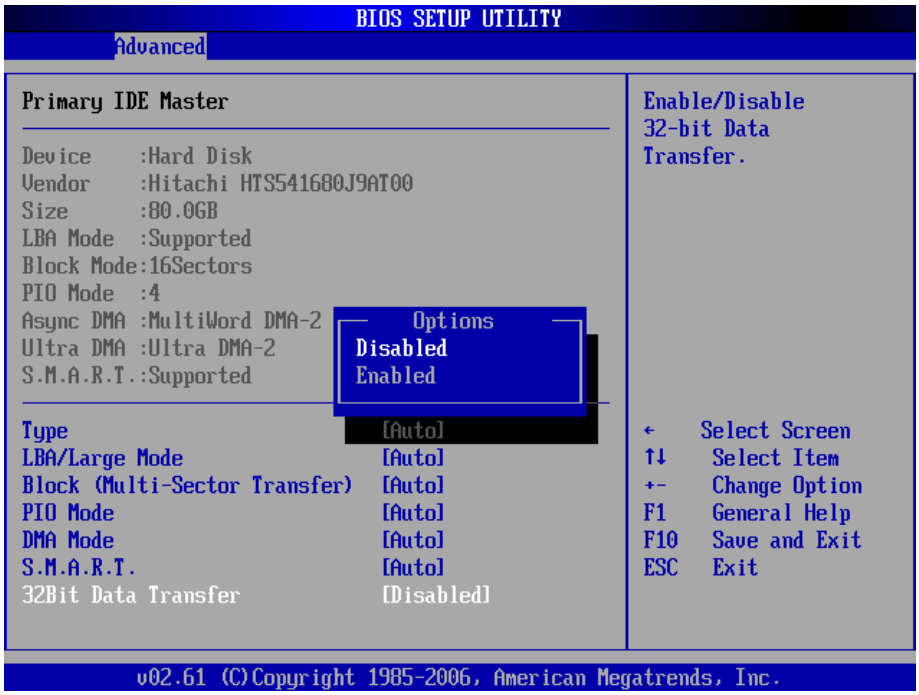
S.M.A.R.T

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.

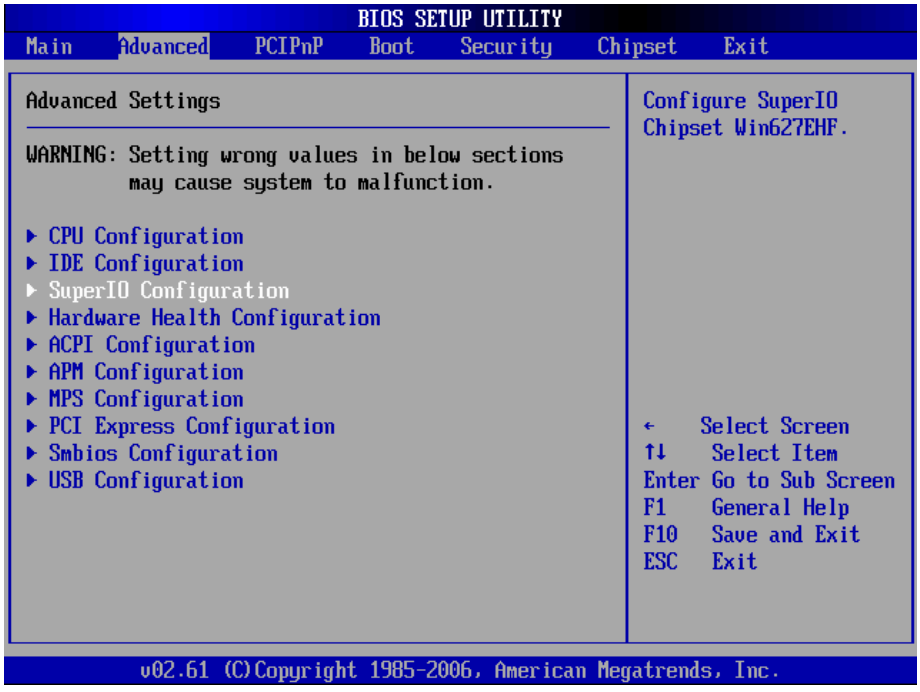


32Bit Data Transfer

It enables 32-bit communication between CPU and IDE card. The options: [Enabled], [Disabled].

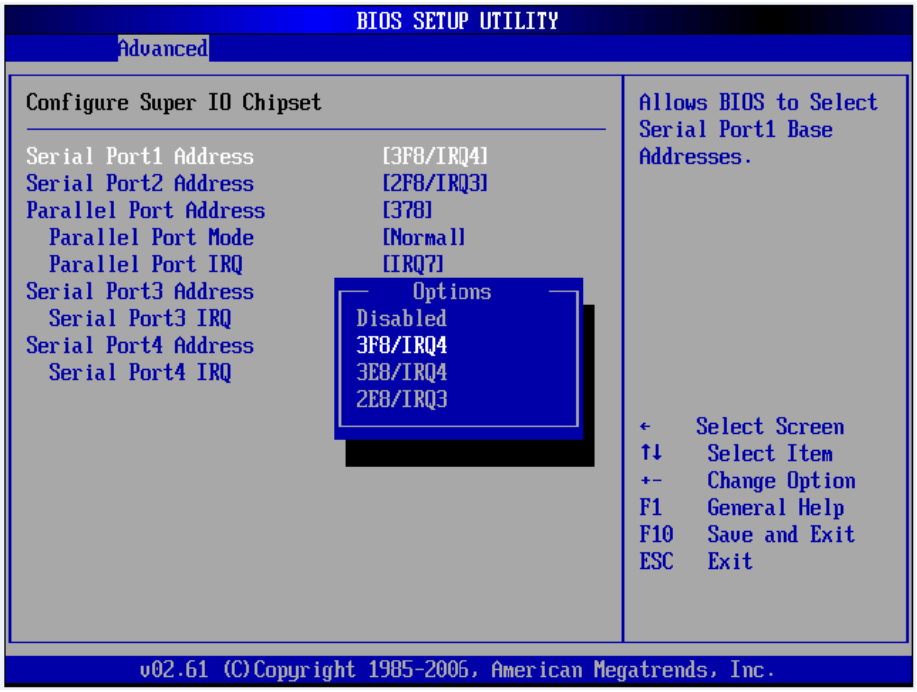


Super IO Configuration



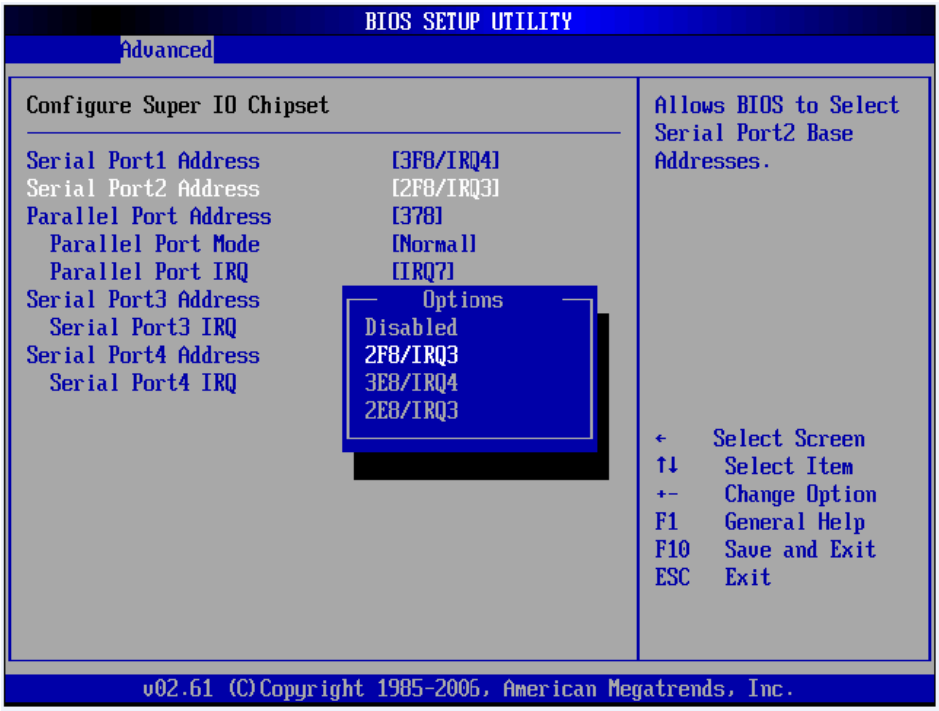
Serial Port 1 Address

It allows you to select the Serial Port1 base address. Configuration options: [Disabled] [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3].



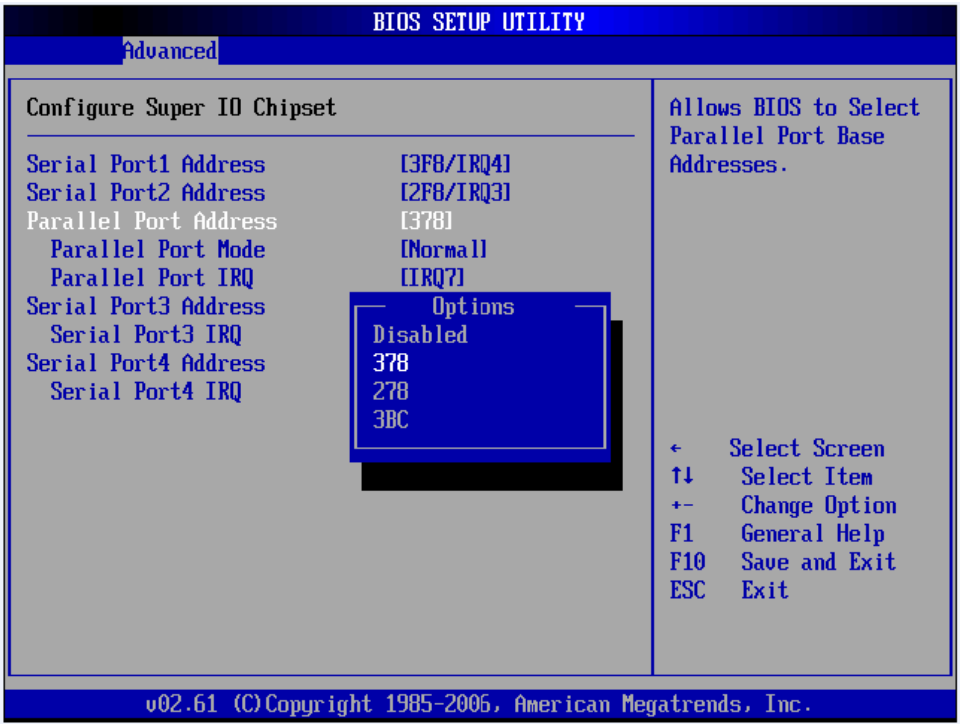
Serial Port 2 Address

It allows you to select the Serial Port2 base address. The options: [Disabled], [3F8/IRQ4], [2F8/IRQ3], [3E8/IRQ4], [2E8/IRQ3].



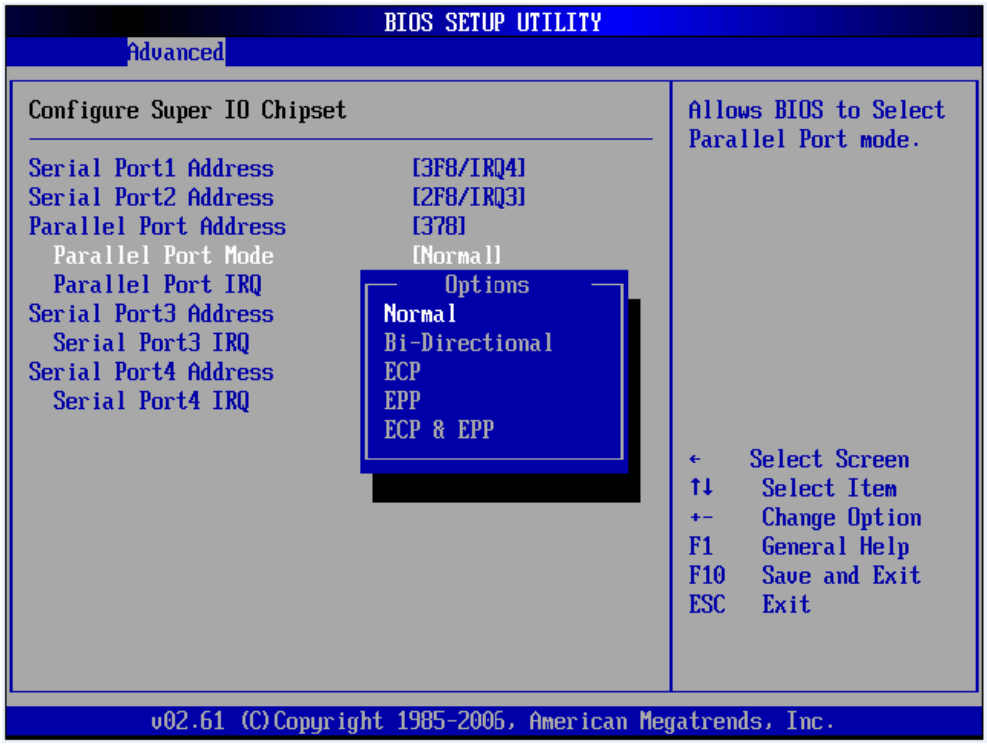
Parallel Port Address

It allows you to select the Parallel Port based address. The options: [Disabled], [378], [278], [3BC].



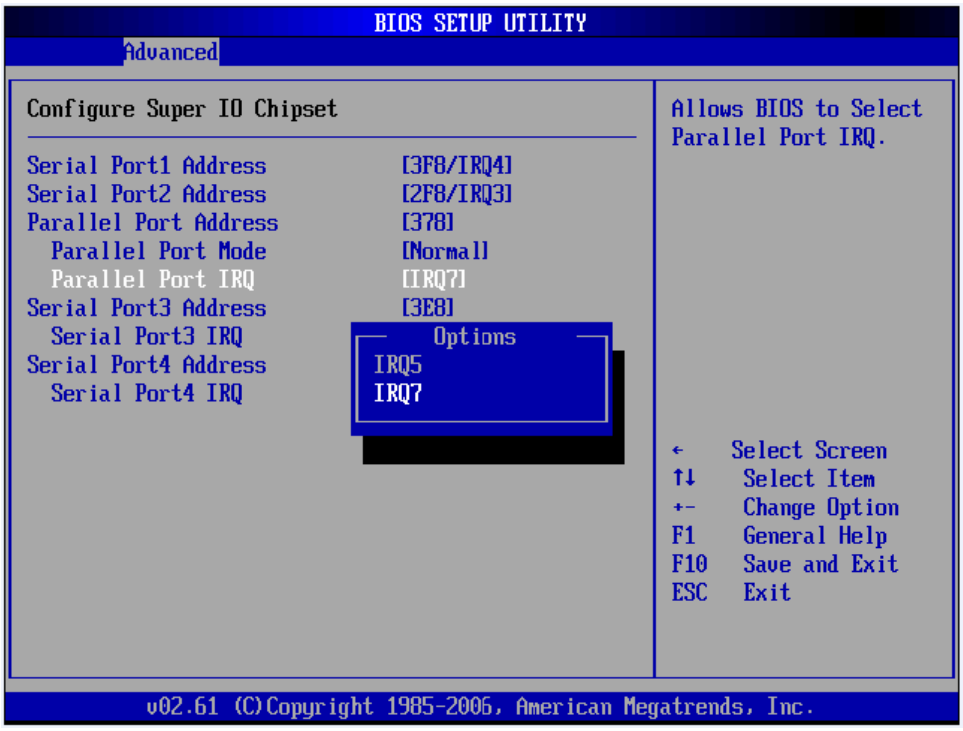
Parallel Port Mode

It allows you to select the Parallel Port Mode. The options: [Normal], [Bi-Directional], [ECP], [EPP], [ECP & EPP].



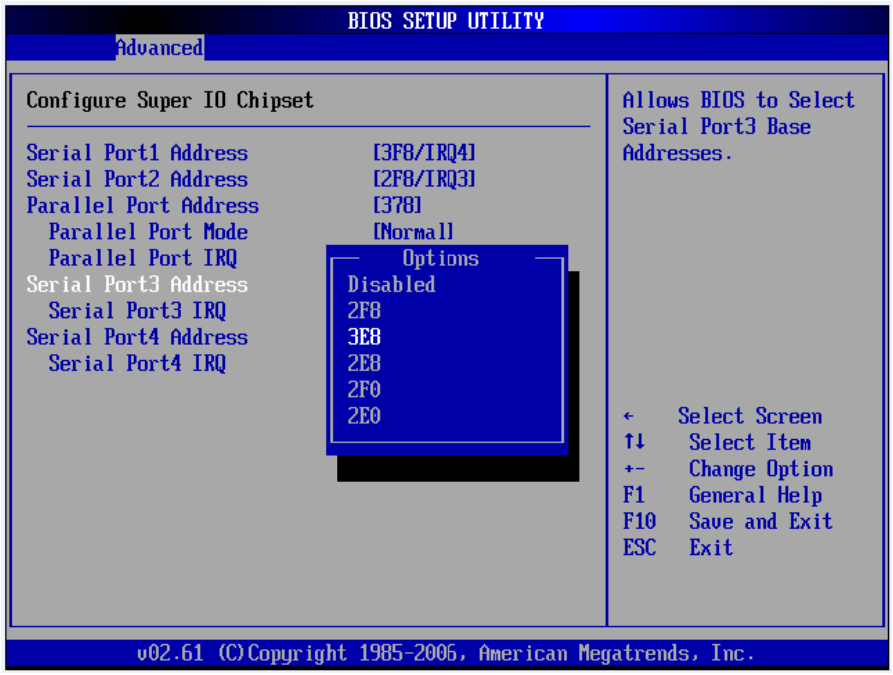
Parallel Port IRQ

It allows BIOS to select Parallel Port IRQ. The options: [IRQ5], [IRQ7].



Serial Port 3 Address

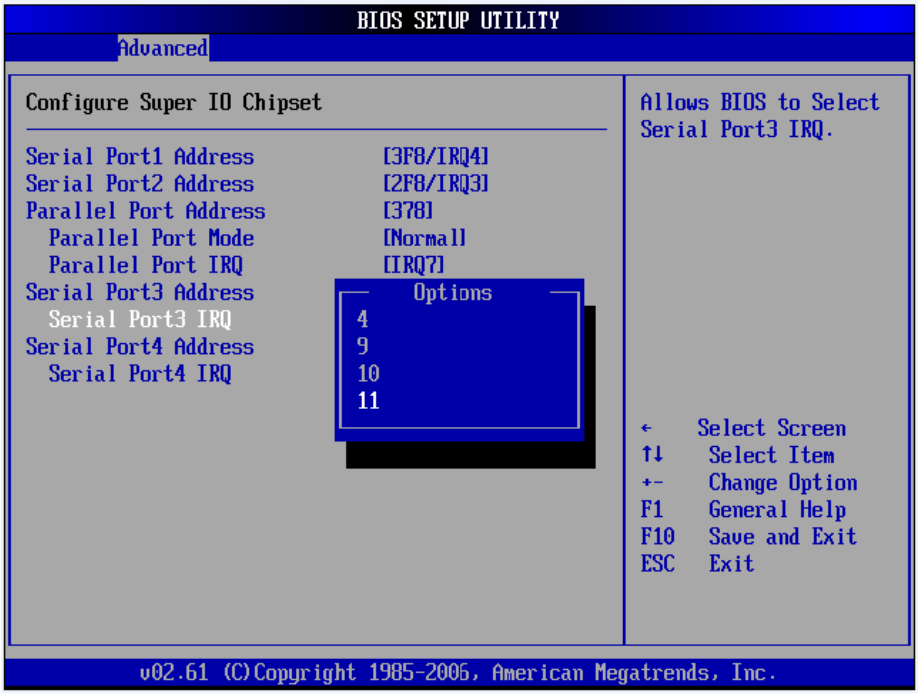
It allows you to select the Serial Port2 base address. The options: [Disabled], [2F8], [3E8], [2E8], [2F0], [2E0].



Serial Port 3 IRQ

It allows BIOS to select Serial Port 3 IRQ.

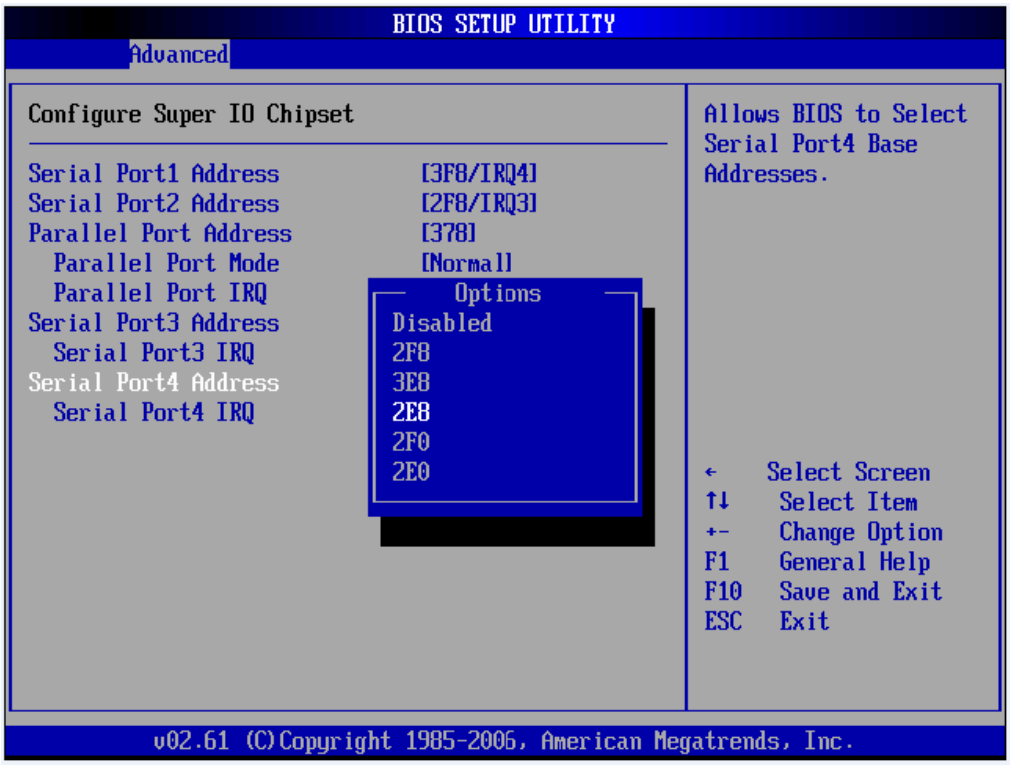
The options: [4], [9], [10], [11]



Serial Port 4 Address

It allows you to select the Serial Port4 based address.

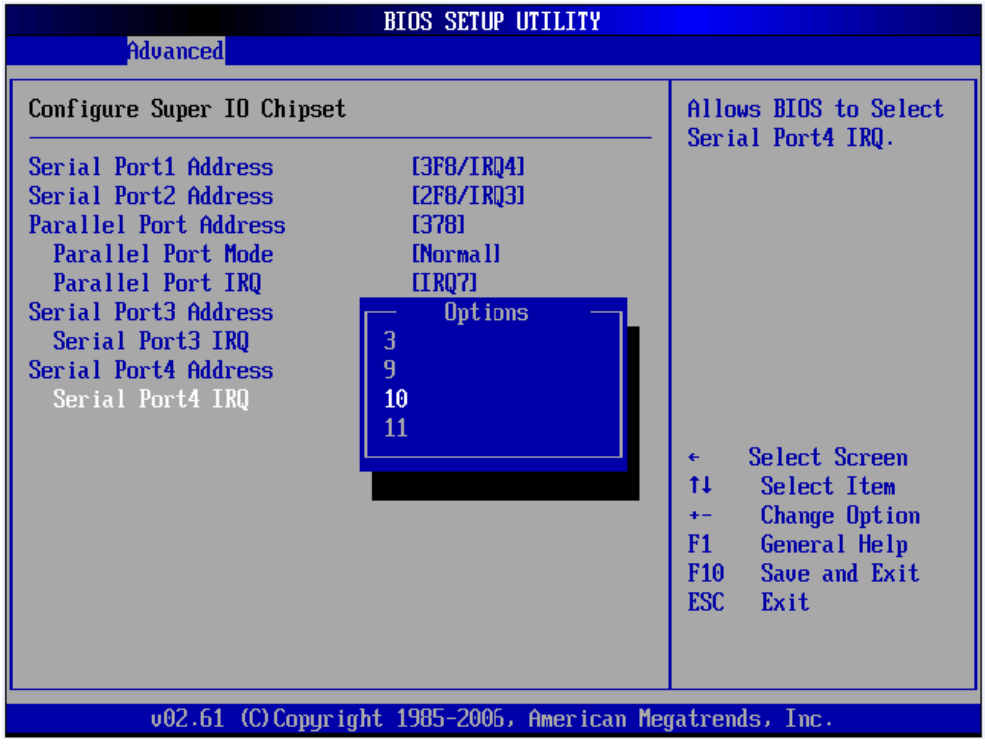
The options: [Disabled], [3E8], [2E8].



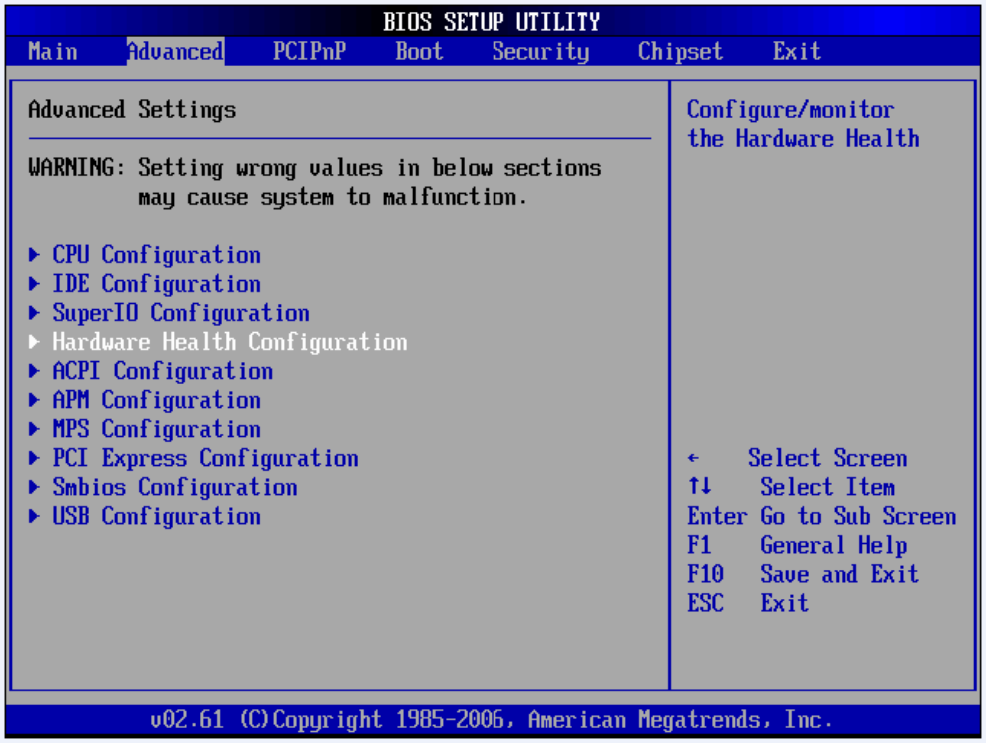
Serial Port 4 IRQ

It allows BIOS to select Serial Port 4 IRQ.

The options: [3], [9], [10], [11].

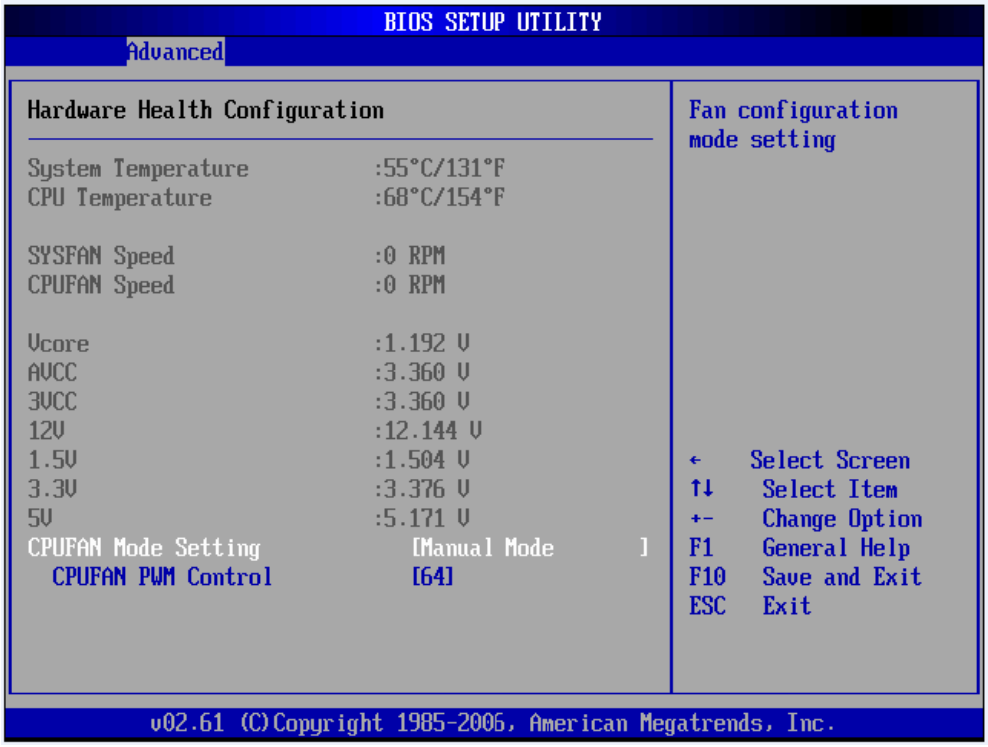


Hardware Health Configuration



CPU Temperature

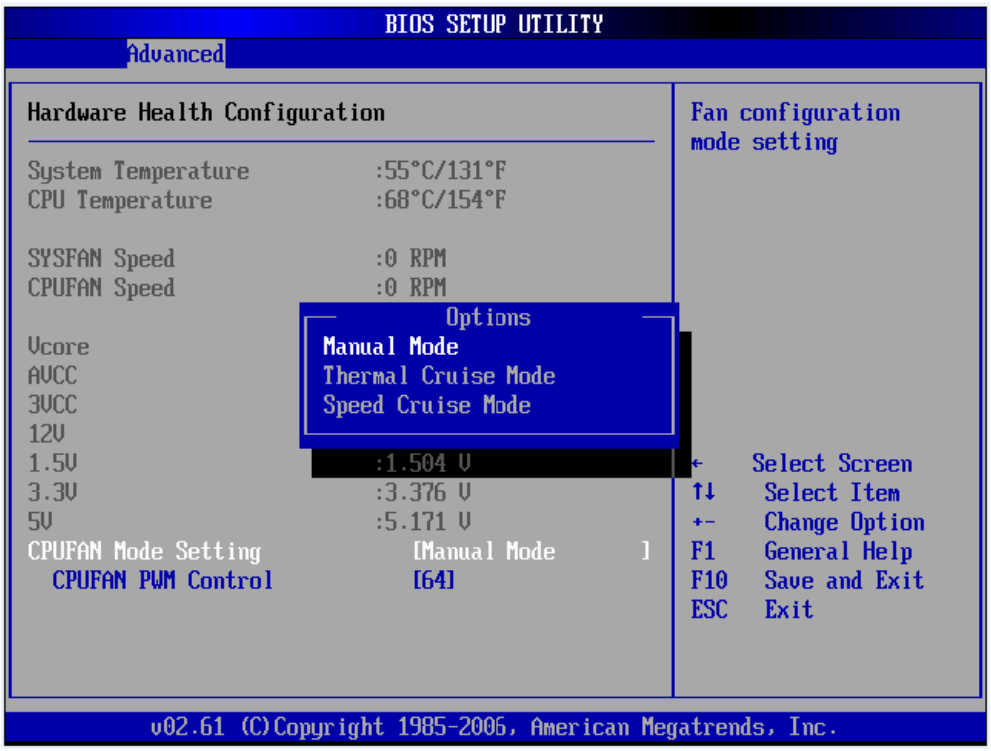
The onboard hardware monitor automatically detects and displays the CPU temperatures. Select [Disable] if you do not want to display the detected temperatures.



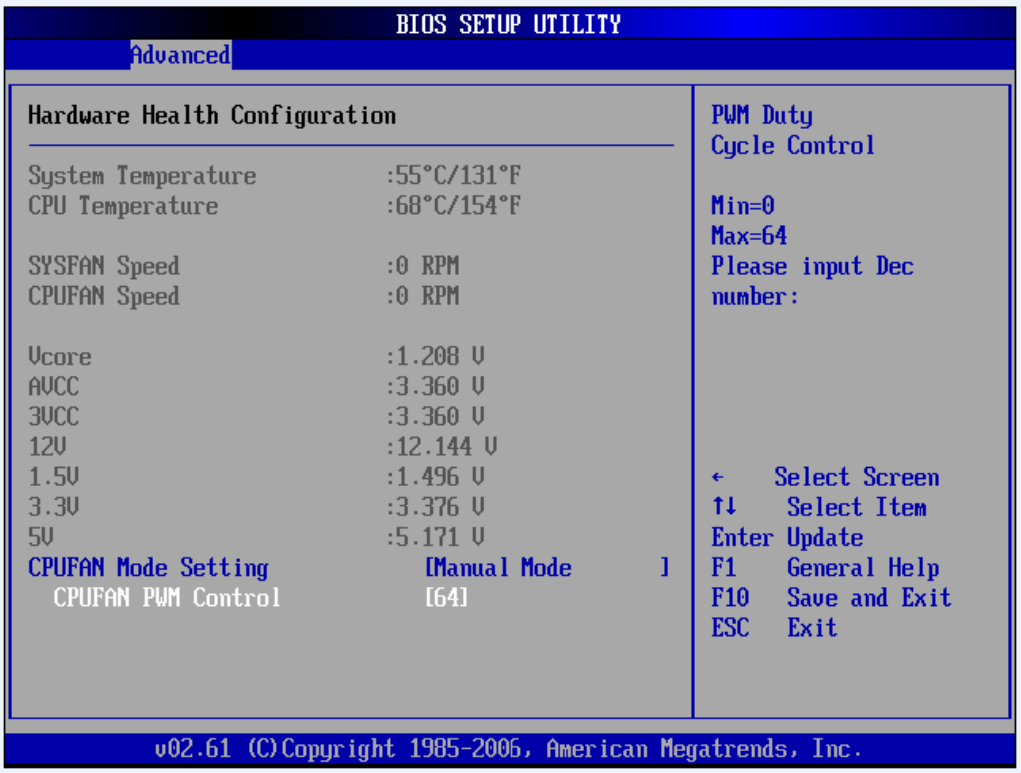
CPUFAN Mode Setting

It allows BIOS to select CPUFAN Mode.

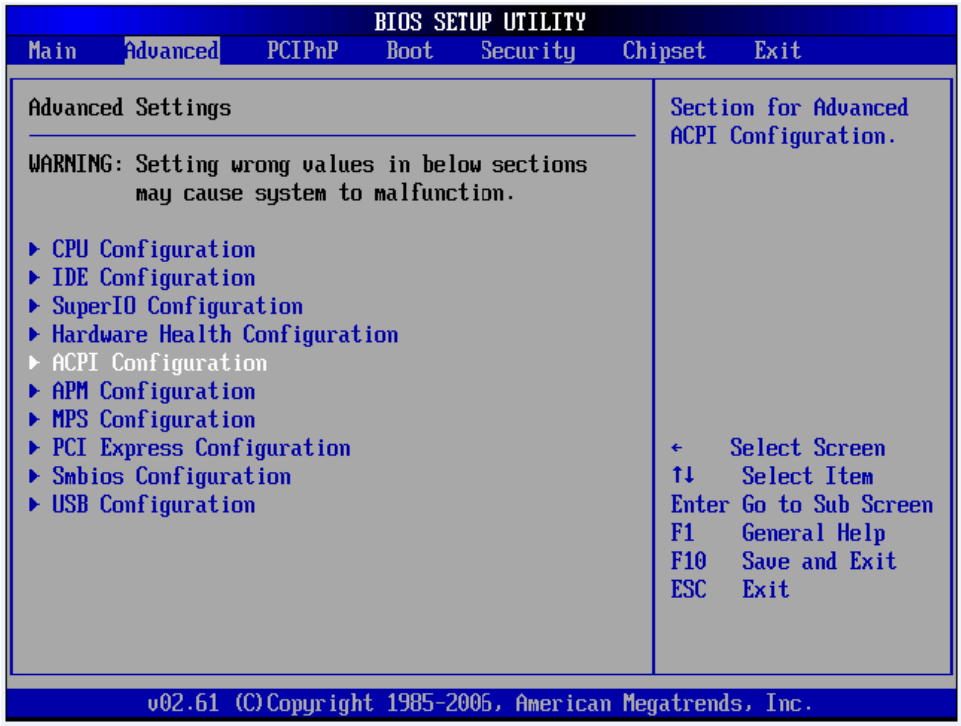
The options: [Manual Mode], [Thermal Cruise Mode], [Speed Cruise Mode].



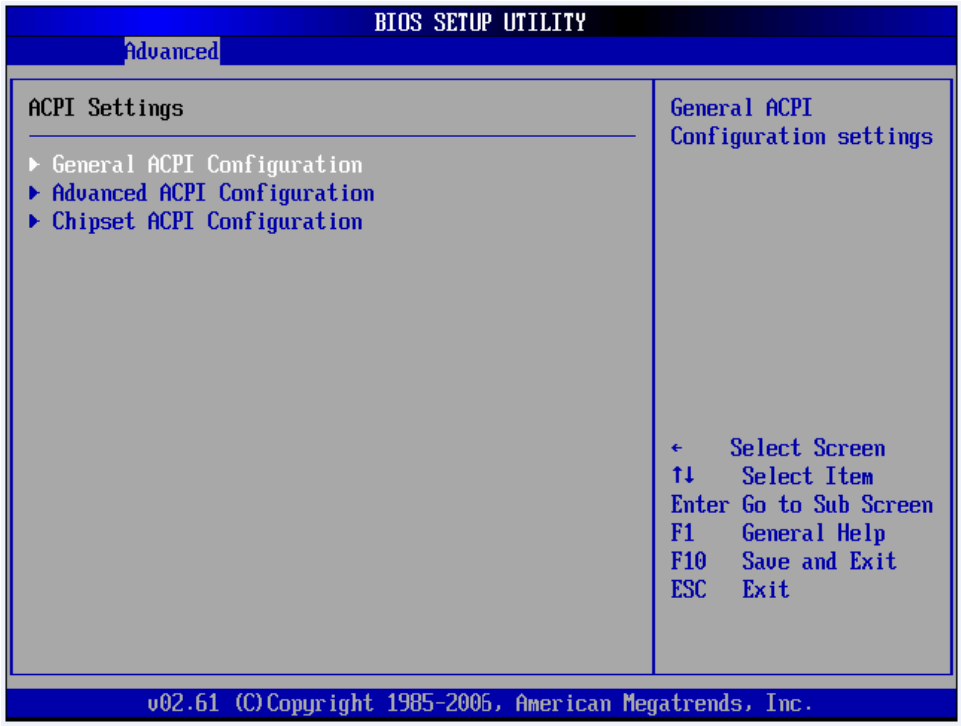
CPUFAN PWM



ACPI Configuration

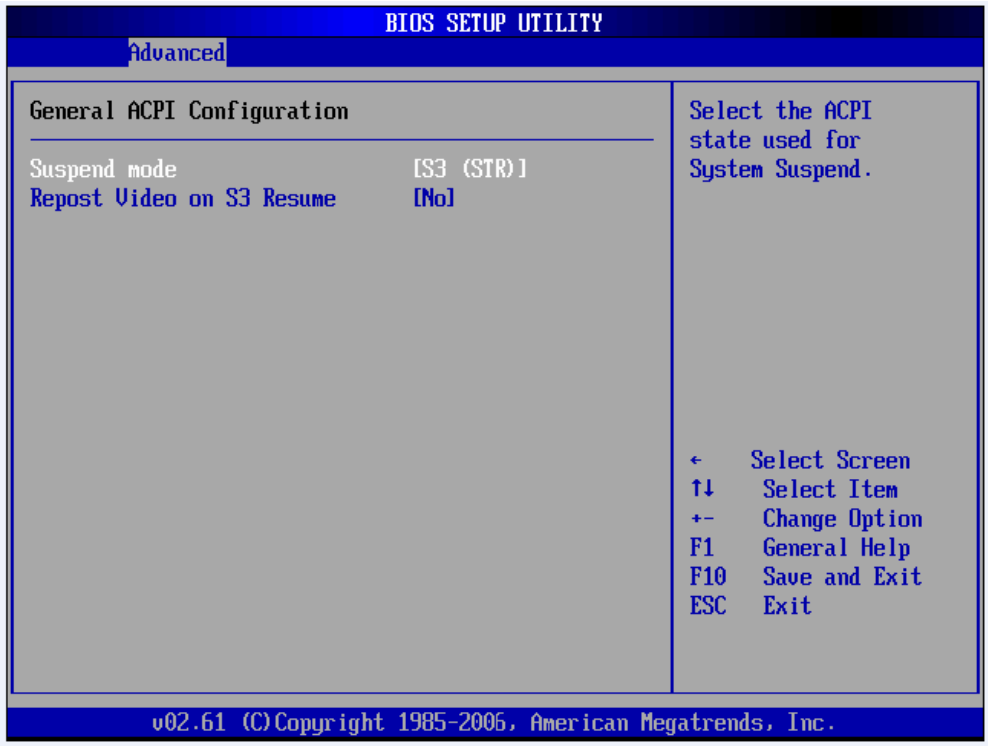


General ACPI Configuration



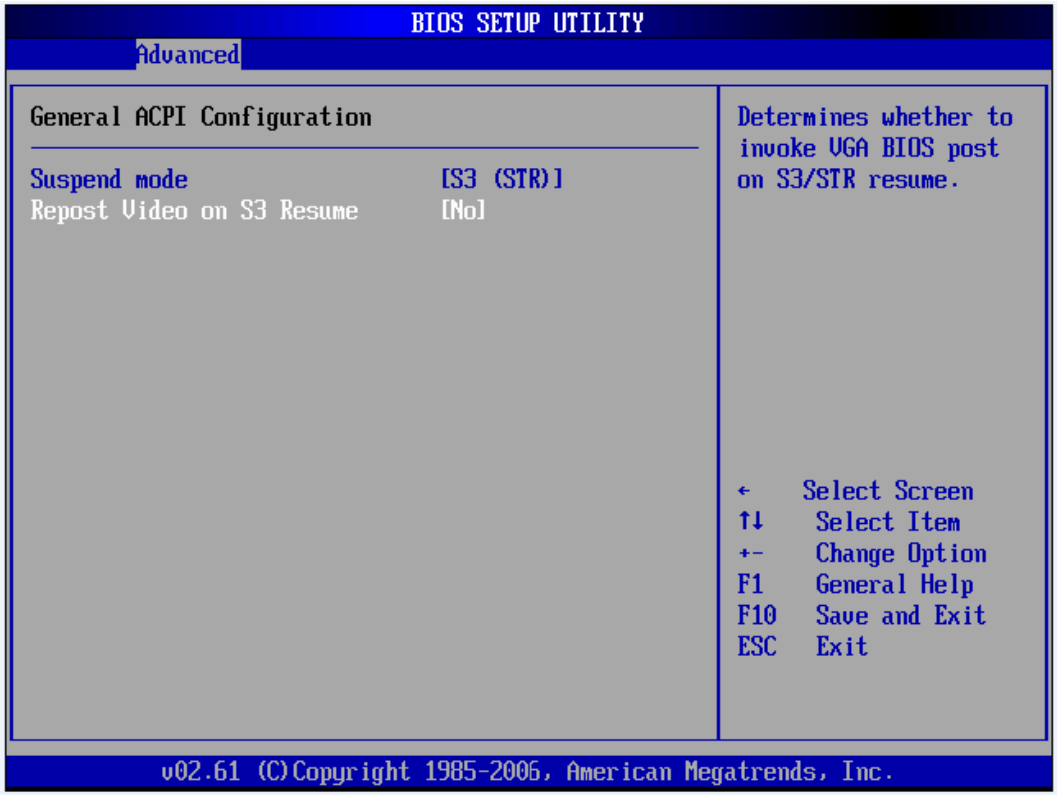
Suspend Mode

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field.



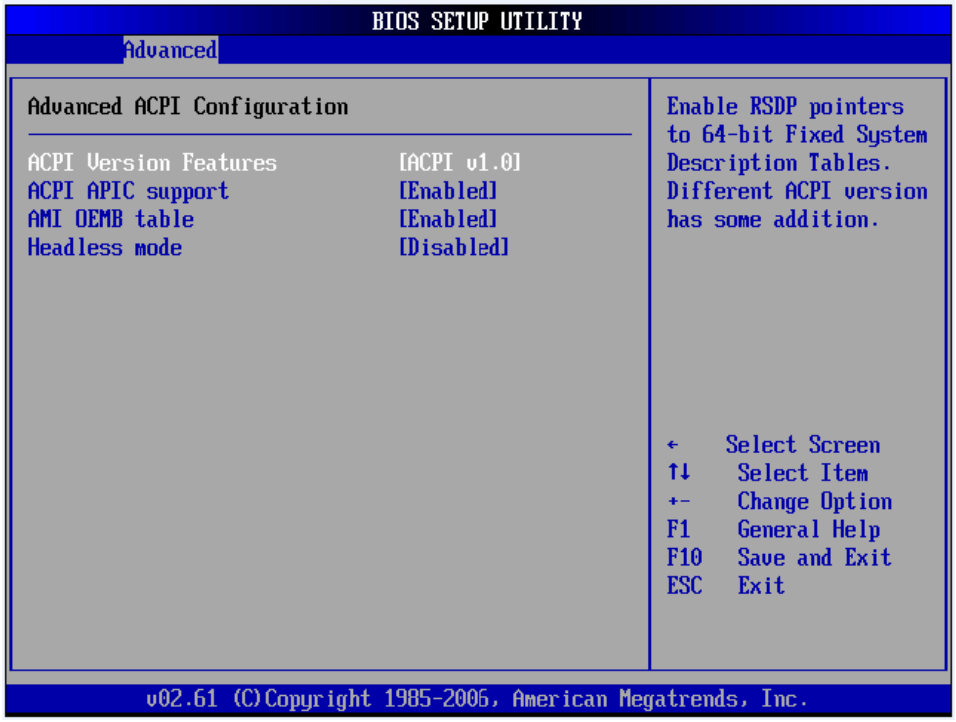
These options:
[S1 (POS)] The S1 sleep mode is a low power status. In this status, no system context is lost (CPU or chipset) and hardware maintains all system contexts. [S3 (STR)] The S3 sleep mode is a lower power status where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save the energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

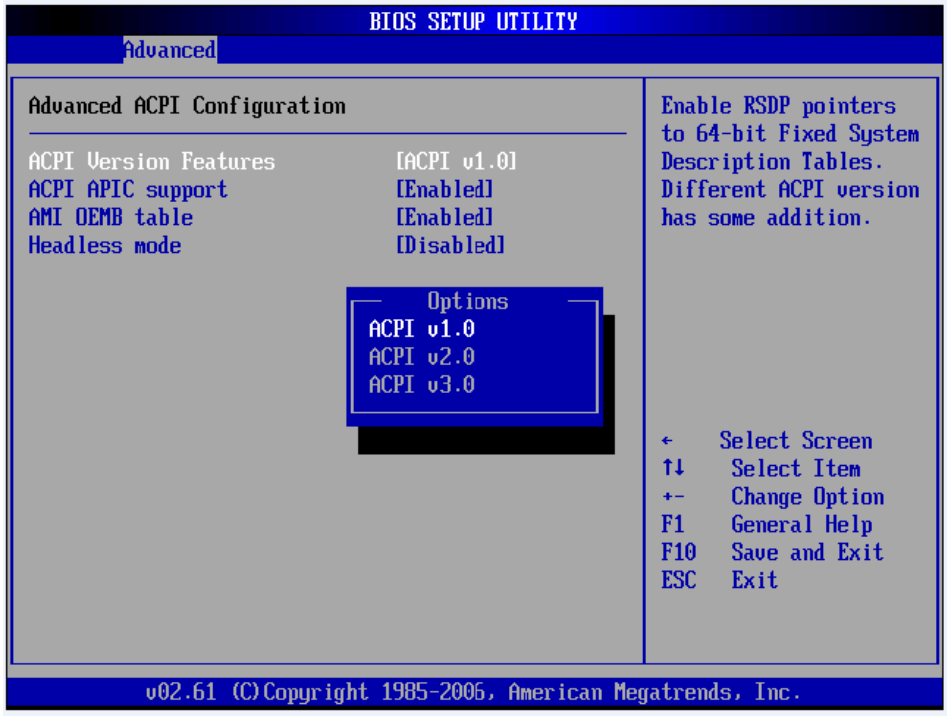
Repost Video on S3 Resume to determine whether to invoke VGA BIOS post on S3/STR resume. The options: [No], [Yes].



ACPI Version Features

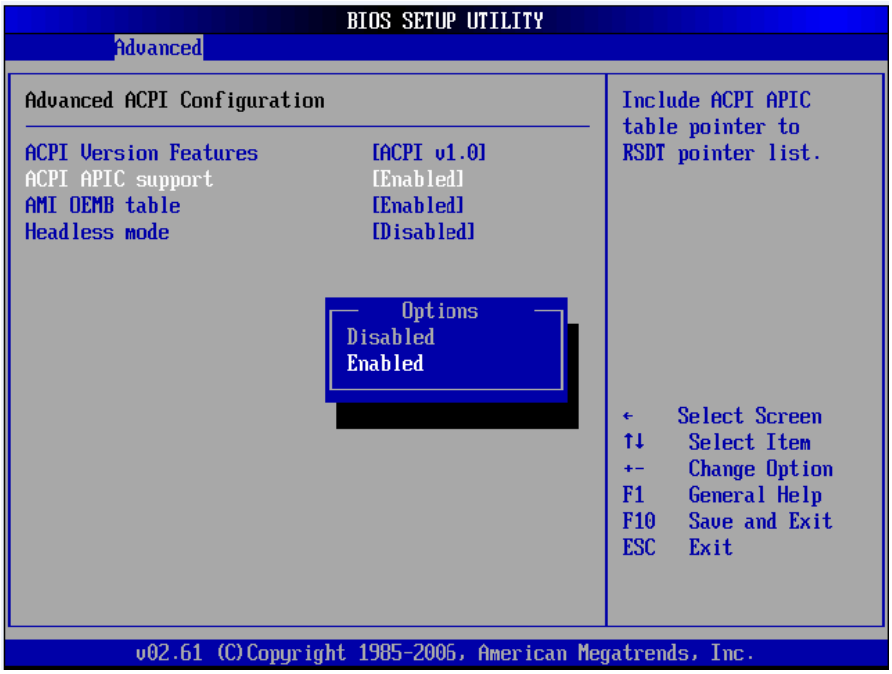
It allows to add more tables for Advanced Configuration and Power Interface (ACPI) 2.0 specifications. The options: [ACPI V1.0], [ACPI V2.0], [ACPI V3.0].


BIOS SETUP UTILITY
Advanced
Advanced ACPI Configuration
ACPI Version Features [ACPI v1.0]
ACPI APIC support [Enabled]
AMI OEMB table [Enabled]
Headless mode [Disabled]
Enable RSDP pointers to 64-bit Fixed System Description Tables. Different ACPI version has some addition.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.



ACPI APIC Support

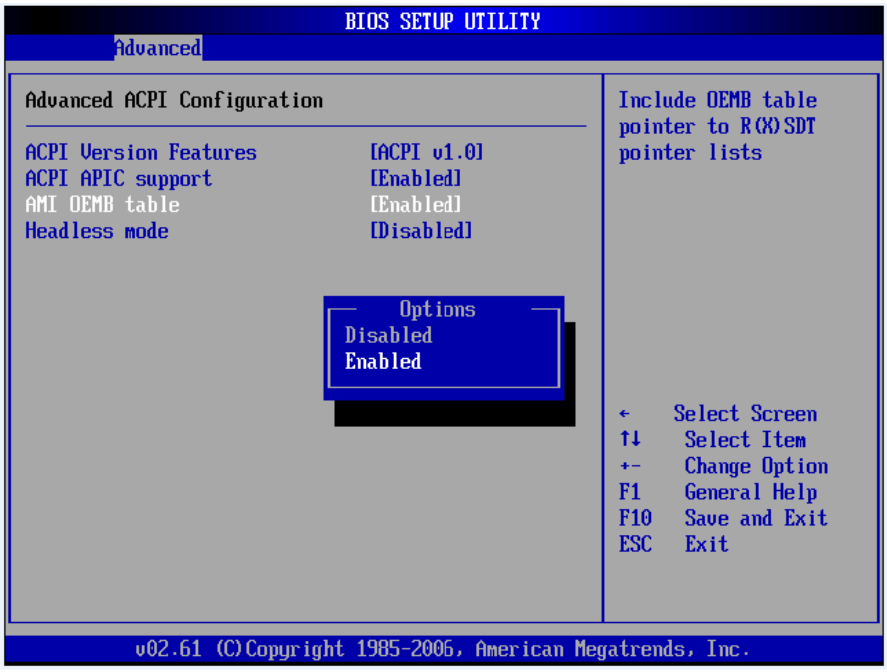
It allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set up is “Enabled”, the ACPI APCI table pointer is included in the RSDT pointer list. The options: [Disabled], [Enabled].



AMI OEMB table

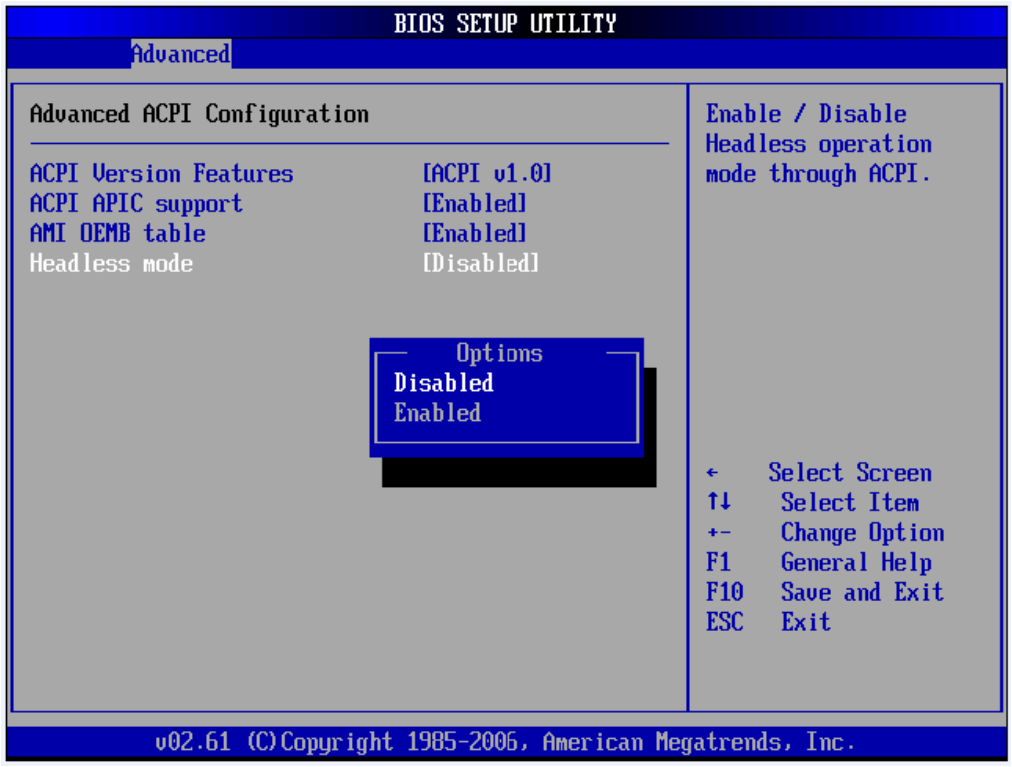
Include OEMB table pointer to R(x)SDT pointer lists.

The options: [Disabled], [Enabled].

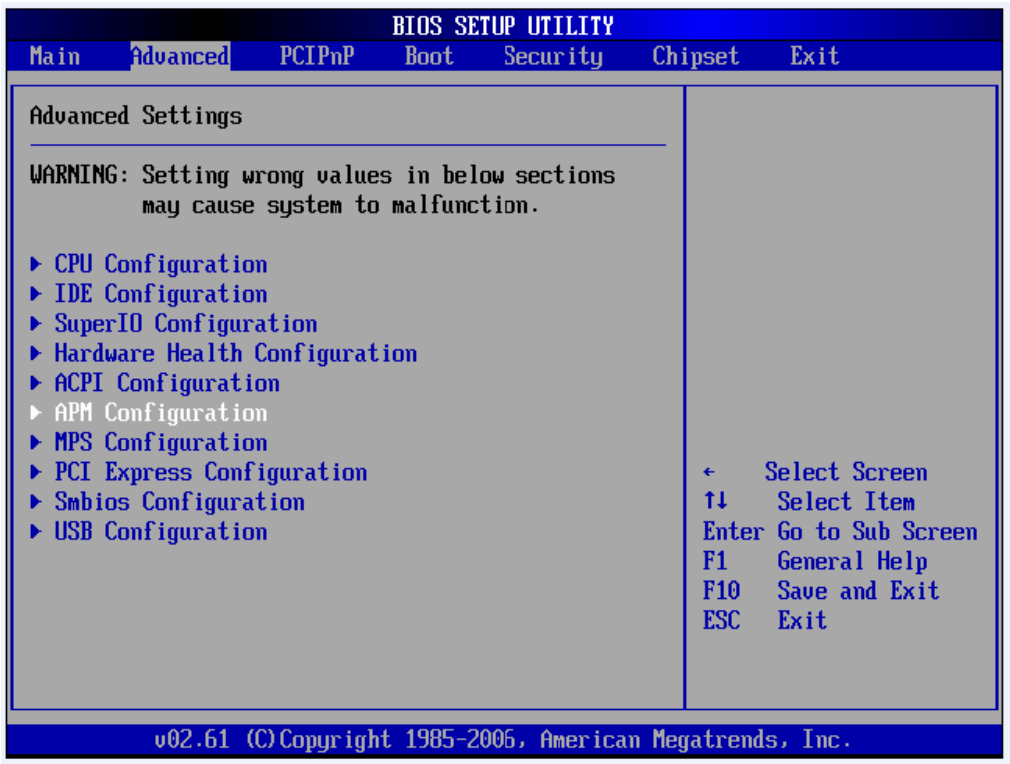


Headless mode

It allows BIOS to select Headless Mode. The Options: [Disable], [Enable]

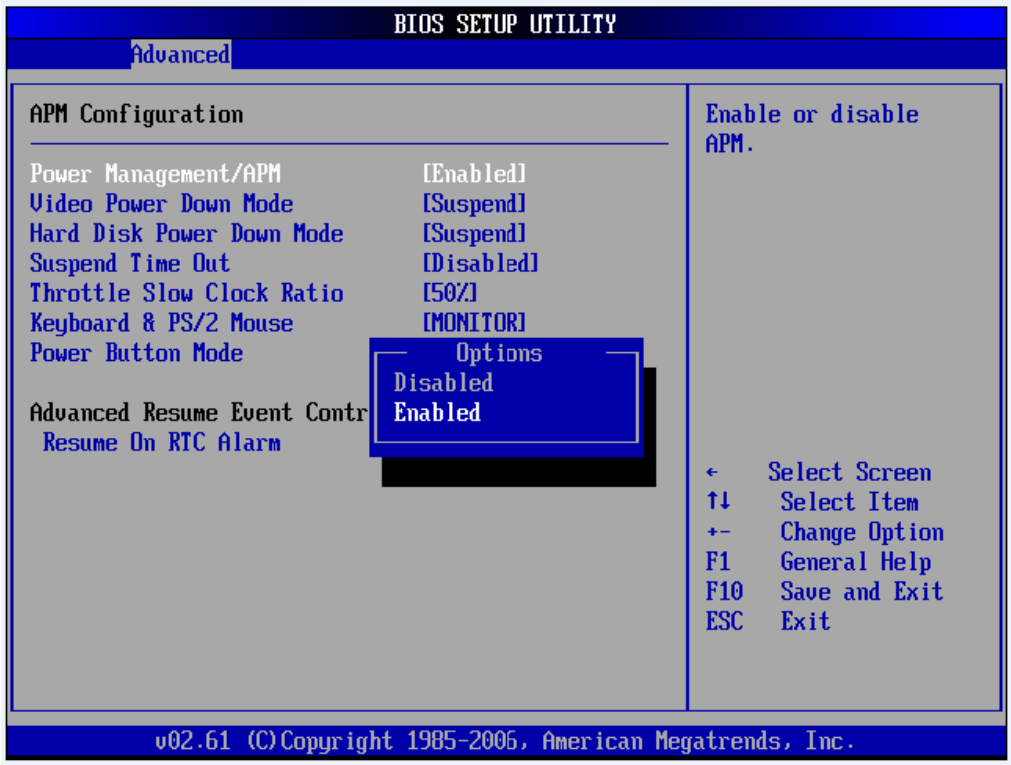


APM Configuration



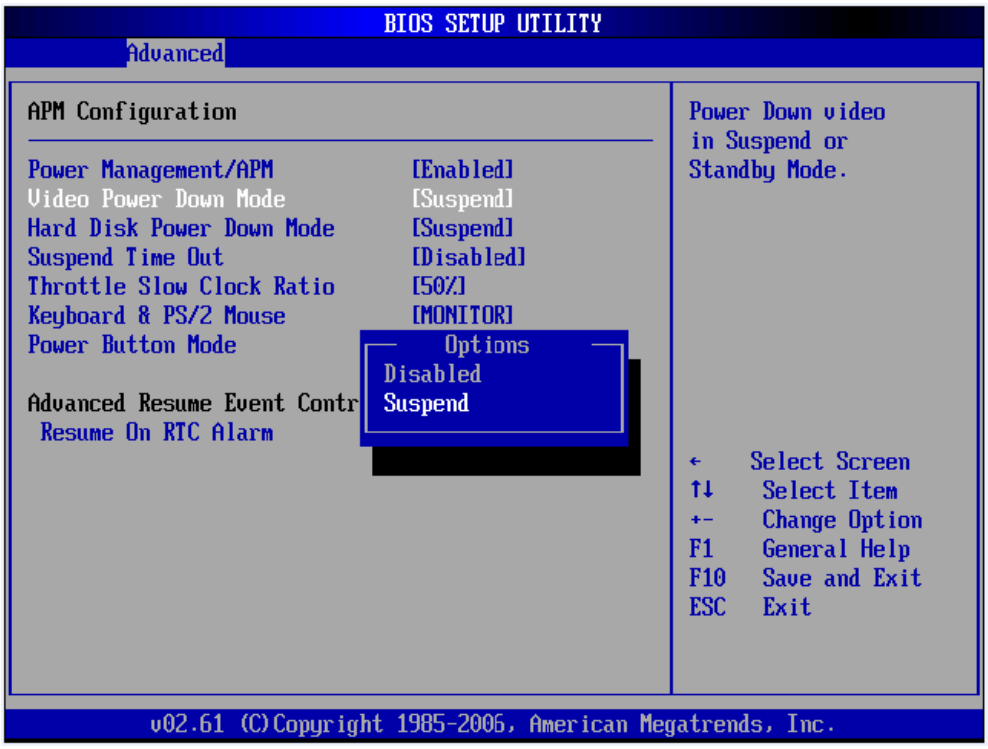
Power Management/APM

Enable or disable APM power management function.



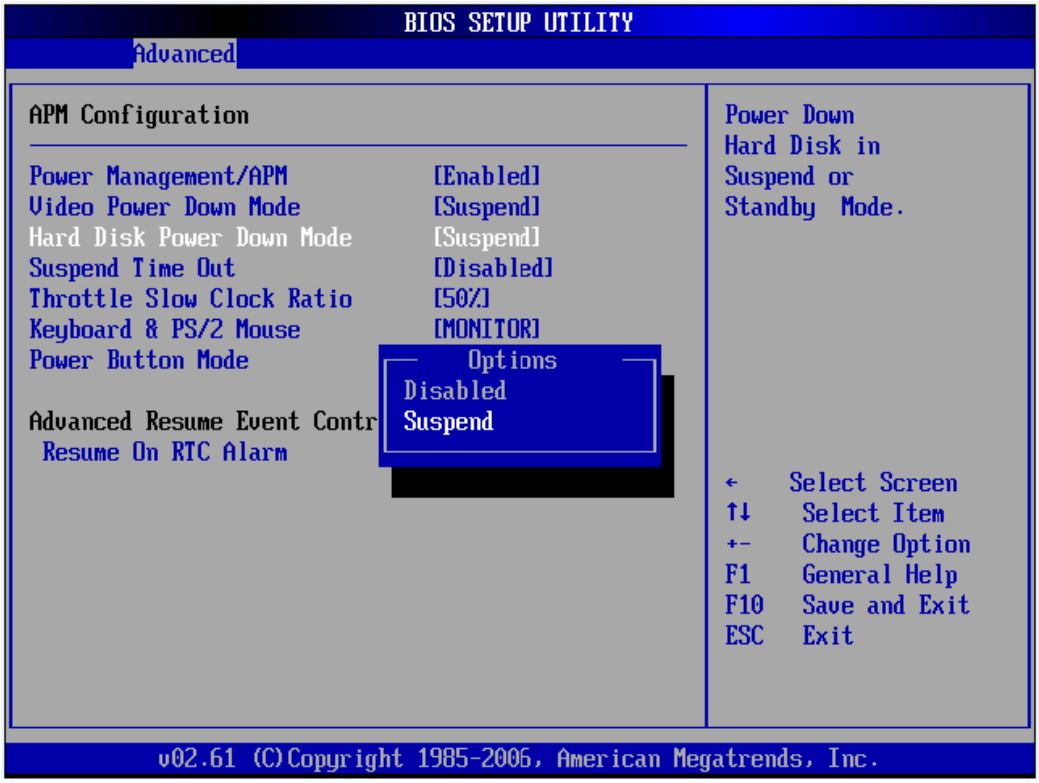
Video Power Down Mode

Disable or Suspend APM Video Power Down function.



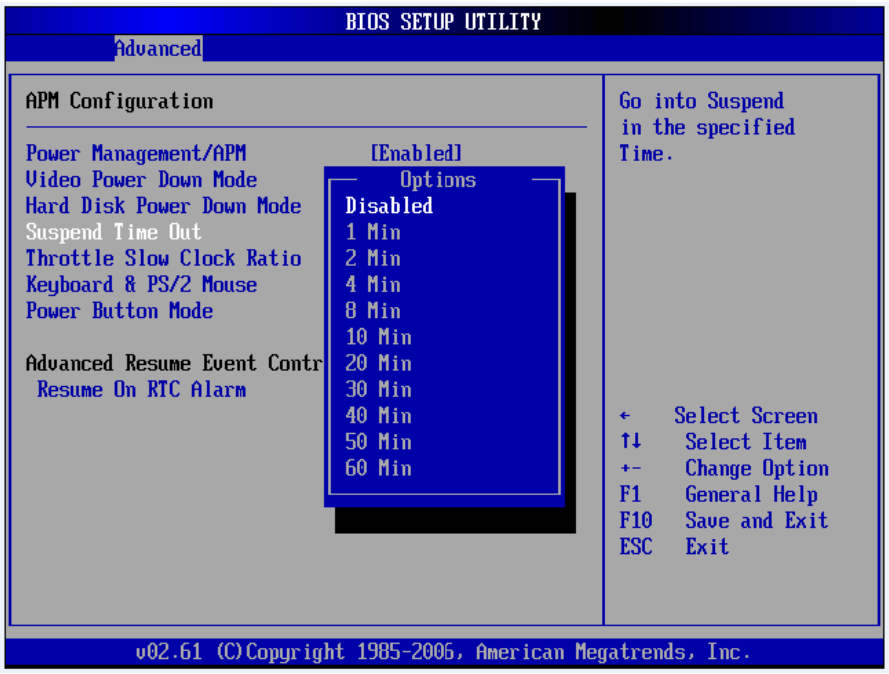
Hard Disk Power Down Mode

Disable or Suspend APM Hard Disk Power Down function.



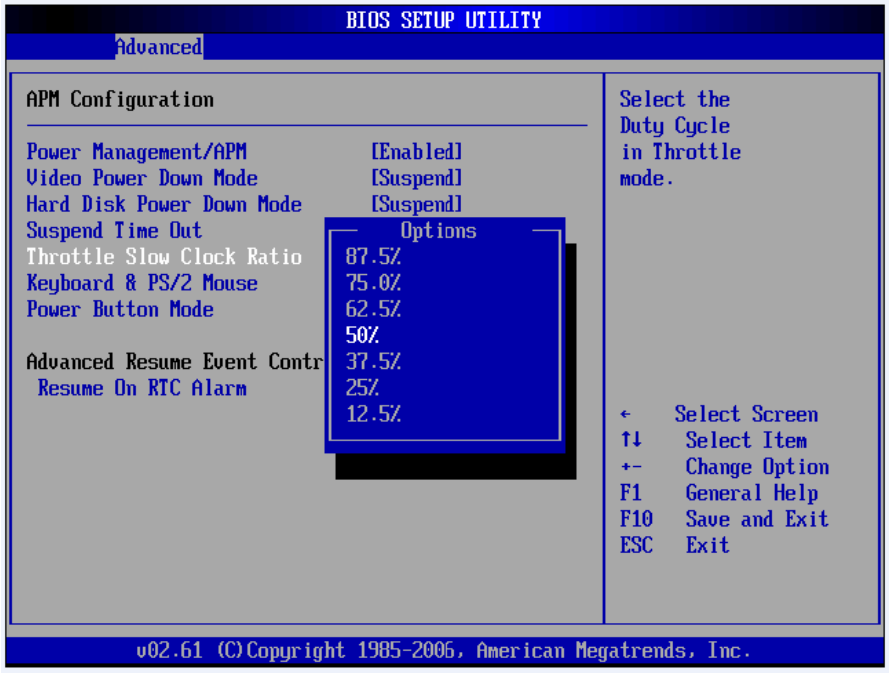
Suspend Time Out

Disable or select time (1~60 Min) Suspend Time Out function.



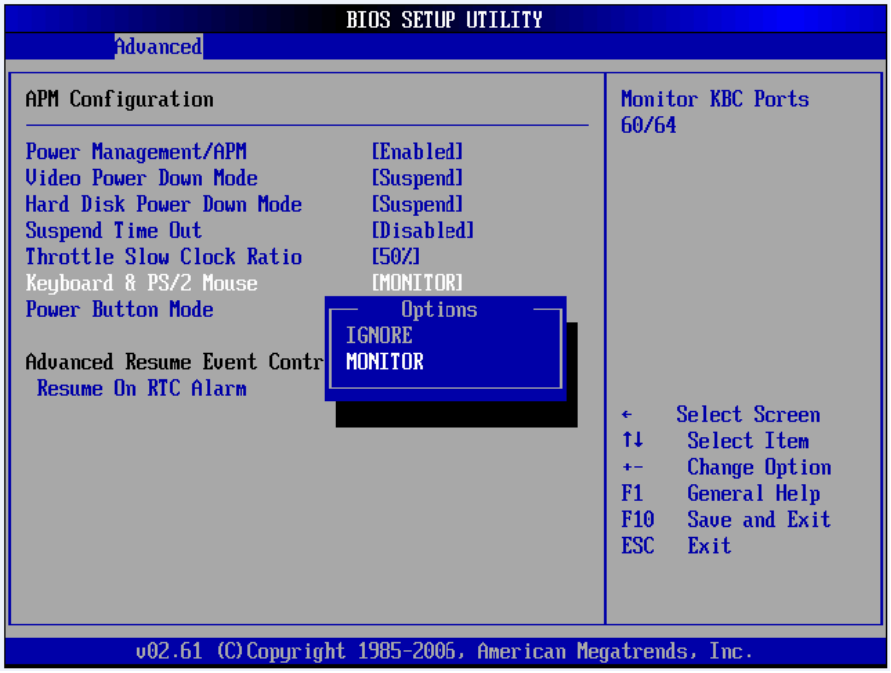
Throttle Slow Clock Ratio

Select Throttle Slow Clock Ratio.



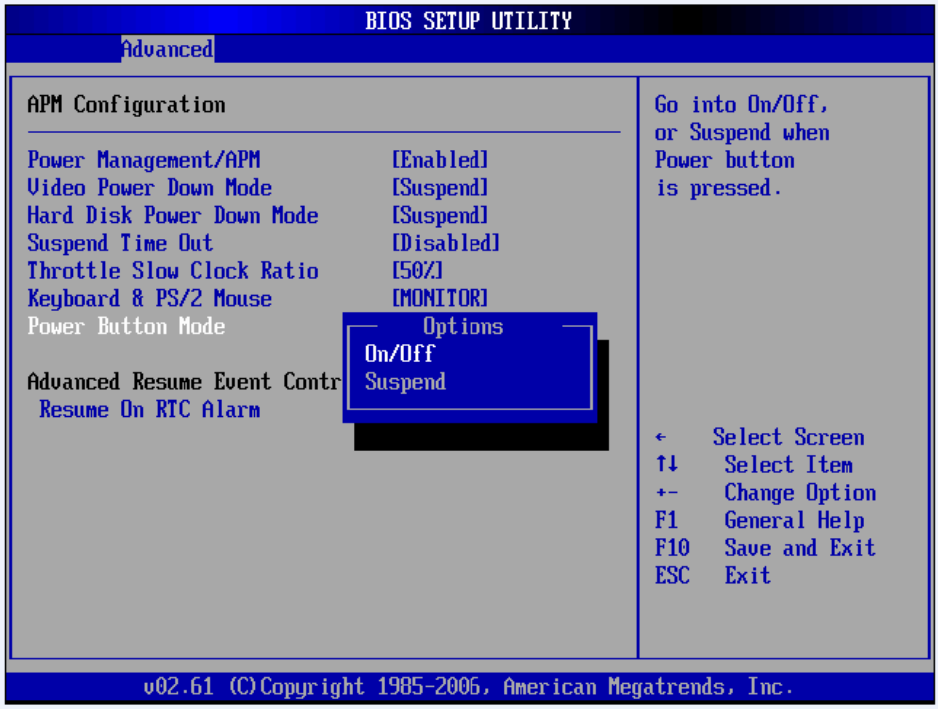
Keyboard & PS/2 Mouse

Select IGNORE or MONITOR.



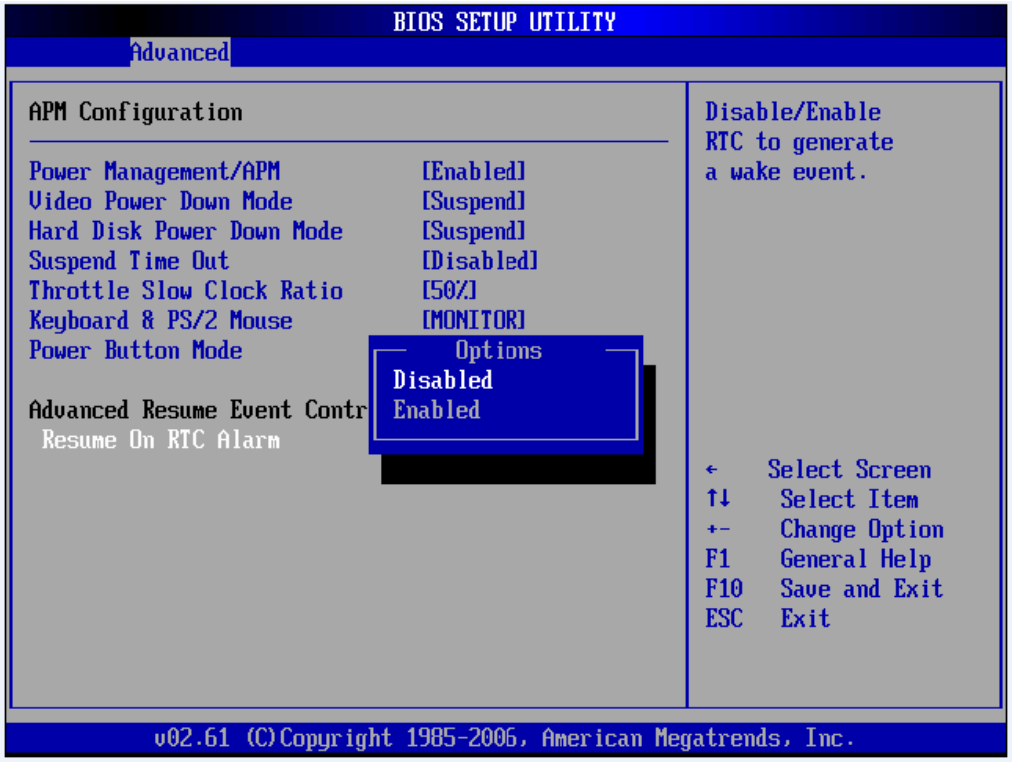
Power Button Mode

Select On/Off or Suspend

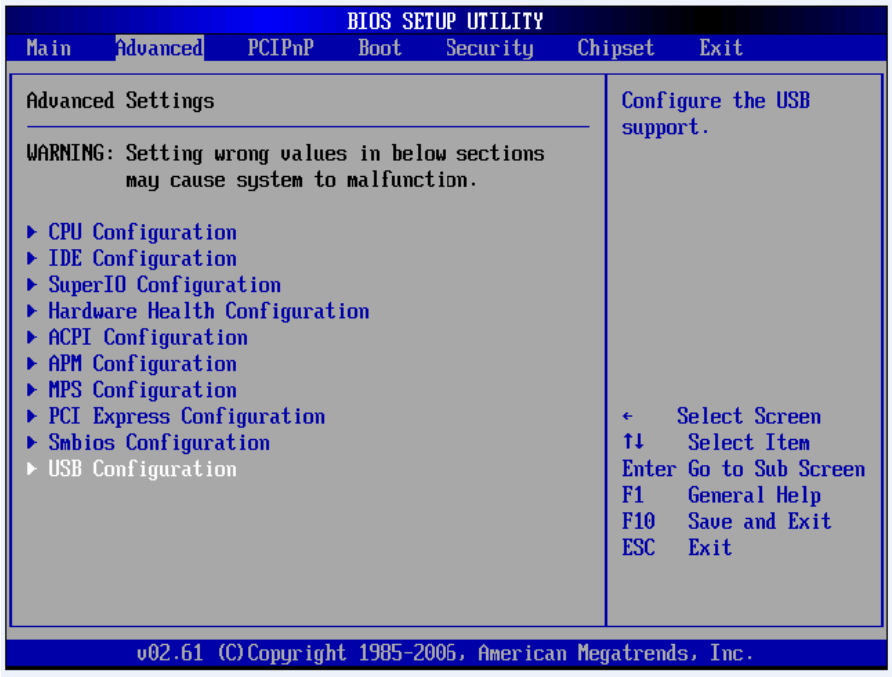


Resume On RTC Alarm

Disable/Enable RTC wake event.

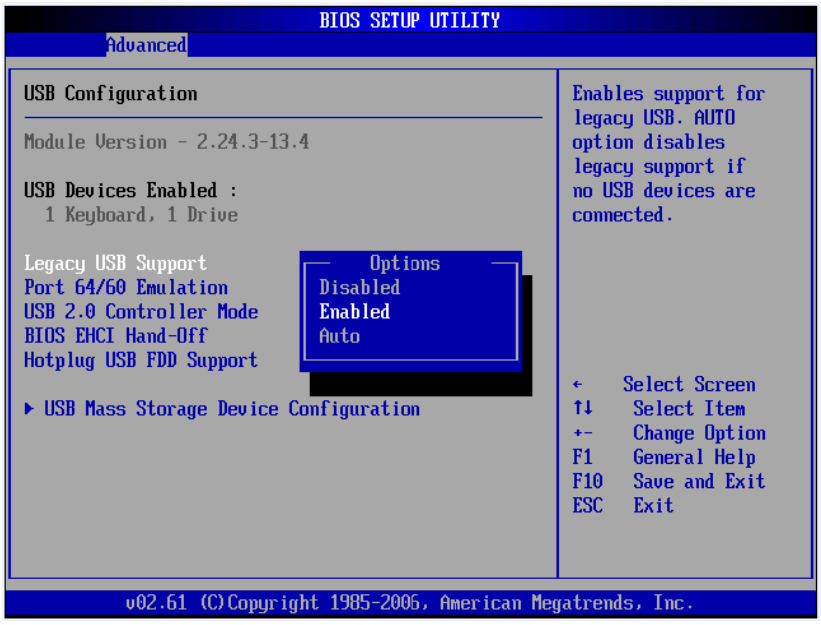


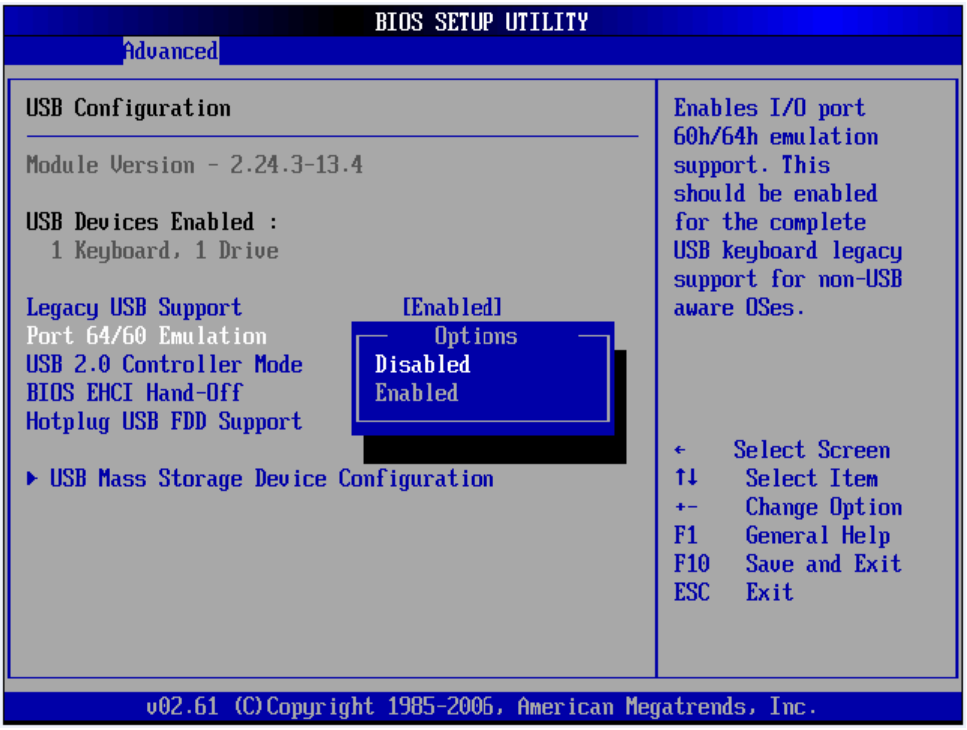
USB Configuration



Legacy USB Support

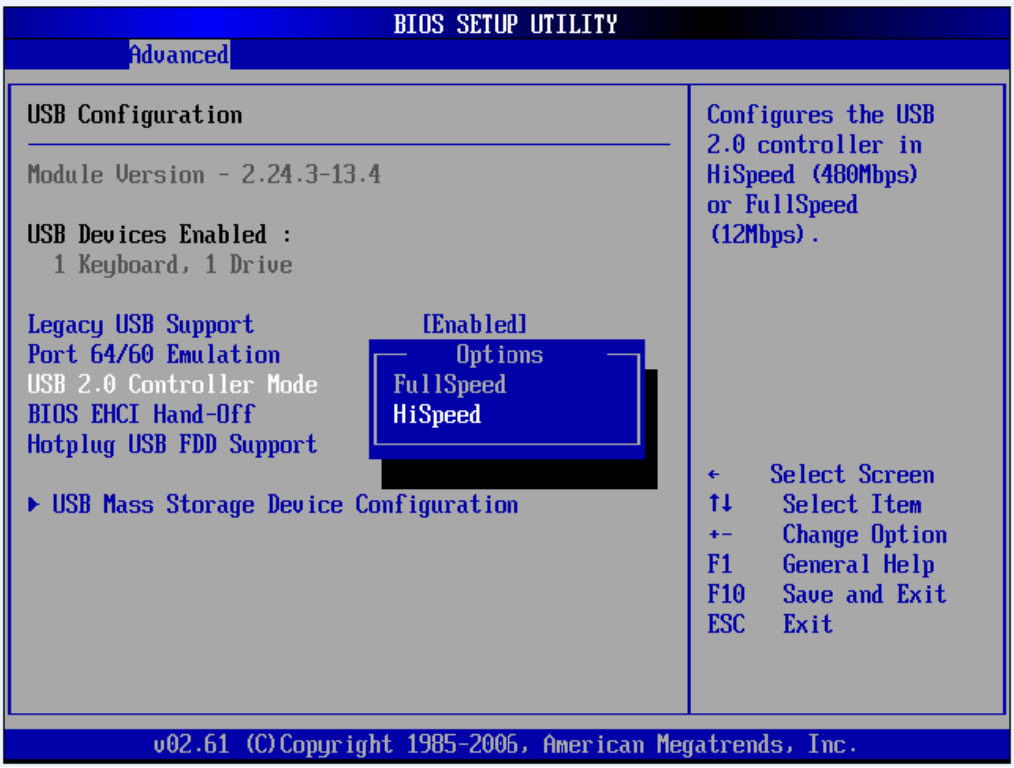
It allows you to enable or disable support for USB devices on legacy operating system (OS). When you set up to “Auto”, it allows the system to detect the presence of USB device at startup image. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. The options: [Disabled], [Enabled], [Auto].USB 2.0 Controller allows you to enable or disable the USB 2.0 controller. The options: [Disabled] [Enabled].





USB 2.0 Controller Mode

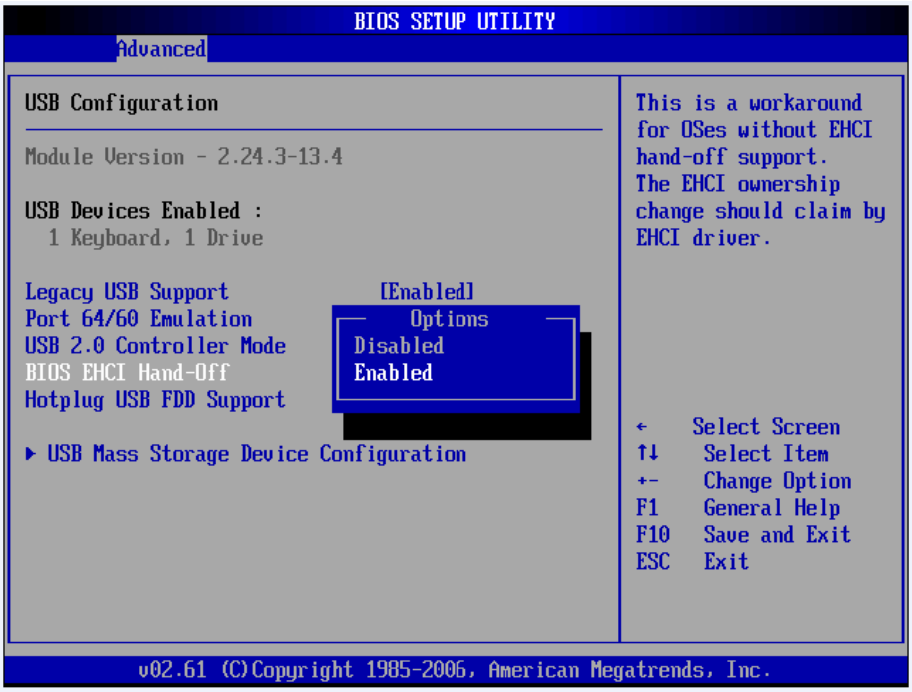
It allows you to configure the USB 2.0 controller in [Hi-Speed (480 Mbps)] or [Full Speed (12 Mbits/s)]. The options: [Full-Speed], [Hi-Speed].



BIOS EHCI Hand-Off

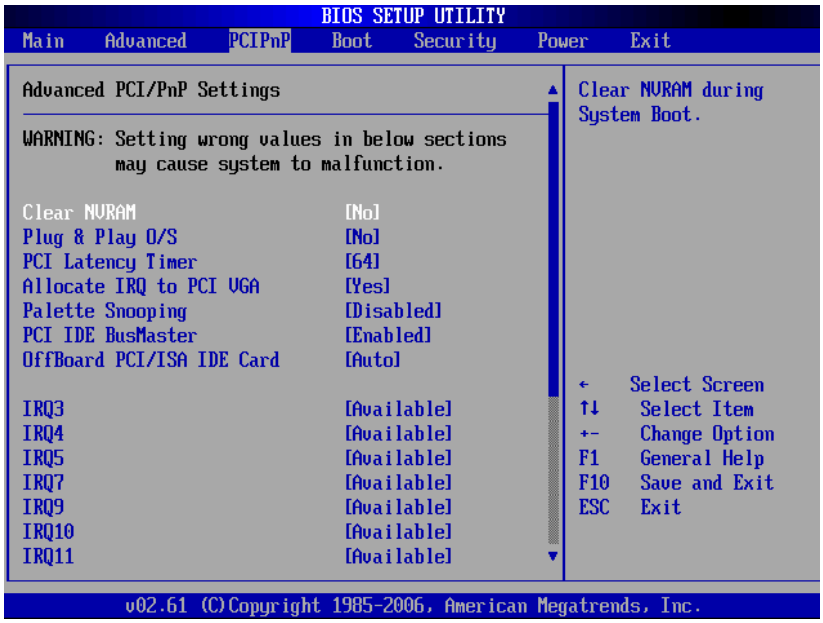
It allows you to enable support for operating systems without an EHCI hand-off feature.

The options: [Disabled], [Enabled].



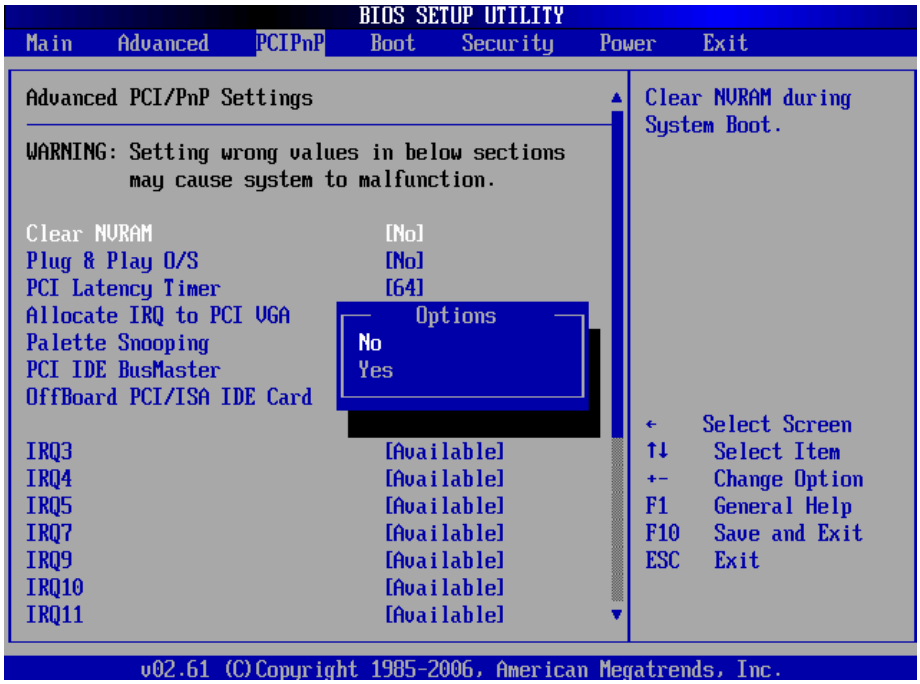
7.4 PCI/PnP

The PCI PnP menu items allow you to change the advanced settings for PCI/PnP devices. The menu includes the setting of the IRQ and DMA channel resources for either PCI/ PnP or legacy ISA device, and setting the memory size block for legacy ISA devices



Clear NVRAM

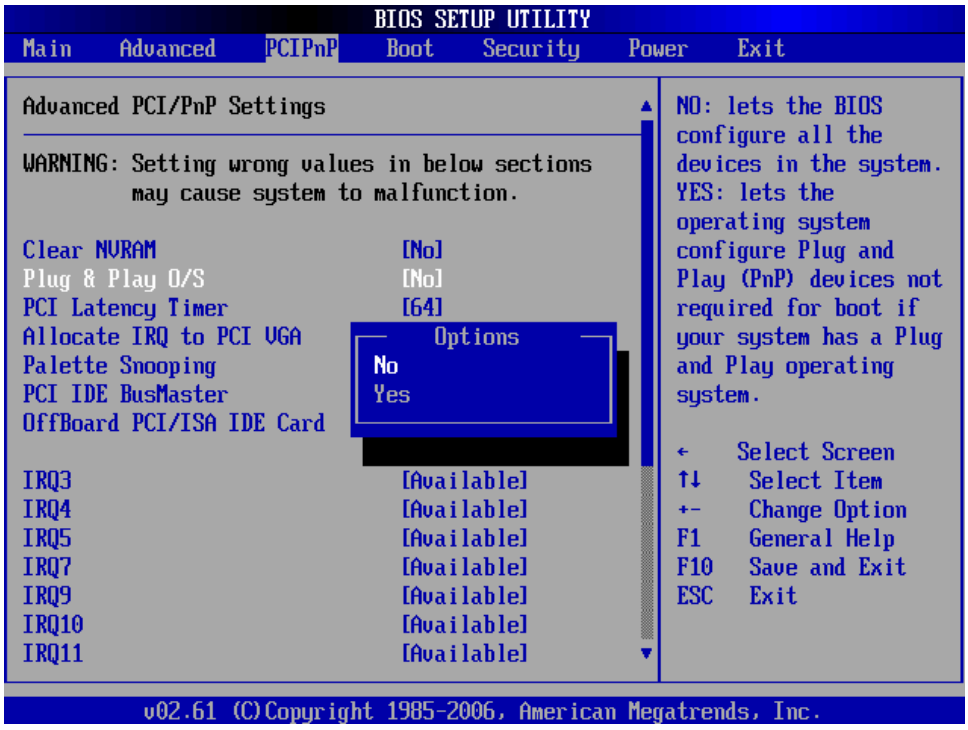
Clear NVRAM during system boot. The options: [No], [Yes].



Plug & Play O/S

When set up to [No], BIOS configures all the devices in the system. When set to [Yes] and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot.

The options: [No] [Yes].


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Power Exit
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
Clear NVRAM [No]
Plug & Play O/S [No]
PCI Latency Timer [64]
Allocate IRQ to PCI VGA
Palette Snooping
PCI IDE BusMaster
OffBoard PCI/ISA IDE Card
Options
No
Yes
IRQ3 [Available]
IRQ4 [Available]
IRQ5 [Available]
IRQ7 [Available]
IRQ9 [Available]
IRQ10 [Available]
IRQ11 [Available]
NO: lets the BIOS configure all the devices in the system. YES: lets the operating system configure Plug and Play (PnP) devices not required for boot if your system has a Plug and Play operating system.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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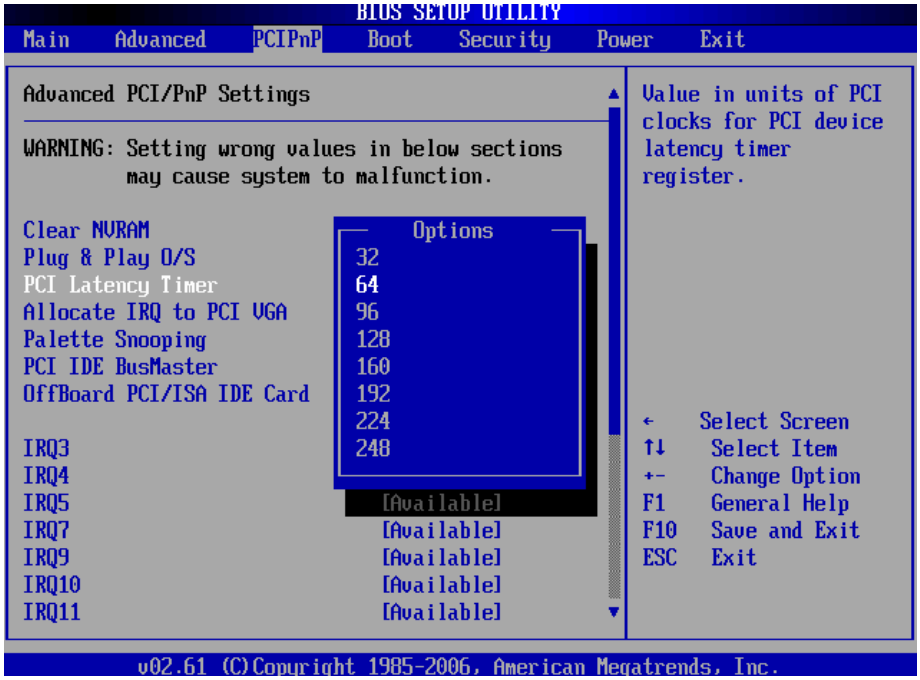
PCI Latency Timer

It allows you to select the value in units of PCI clocks for the PCI device latency timer register. The options: [32] [64] [96] [128] [160] [192] [224] [248].



Allocate IRQ to PCI VGA

When set up to choose [Yes], BIOS would assign an IRQ to PCI VGA card if the card requests for an IRQ. When set up to choose [No], BIOS does not assign an IRQ to the PCI VGA card even if requested. The options: [No] [Yes].

Palette Snooping

When set up to choose [Enabled], the palette snooping feature informs the PCI devices that an ISA graphics device is installed in the system so that the latter can function correctly.

The options: [Disabled] [Enabled].

PCI IDE Bus Master the BIOS use PCI bus mastering for reading/writing to IDE device. The options: [Disabled], [Enabled].

Off Board PCI/ISA IDE Card

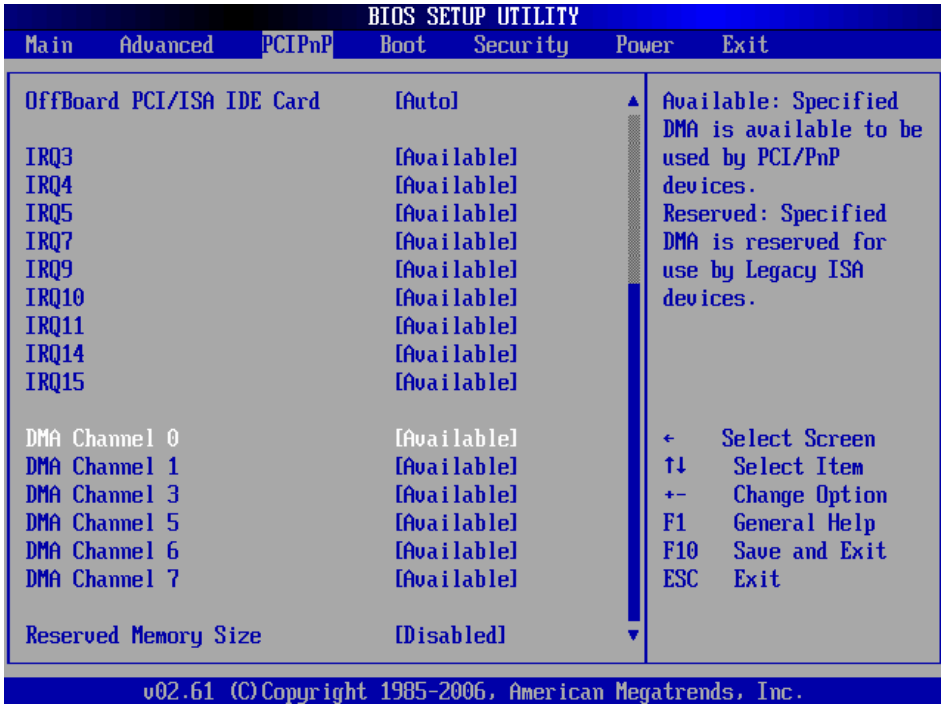
It allows you to set up the PCI slot number. The options: [Auto], [PCI Slot1], [PCI Slot2], [PCI Slot 3], [PCI Slot4], [PCI Slot5], [PCI Slot6].

IRQ3,4,5,7,9,10,11,14,15

It allows you to specify IRQ that is available to be used by PCI/PnP or Legacy ISA device. The options: [Available], [Reserved].

DMA Channel 0,1,3,5,6,7

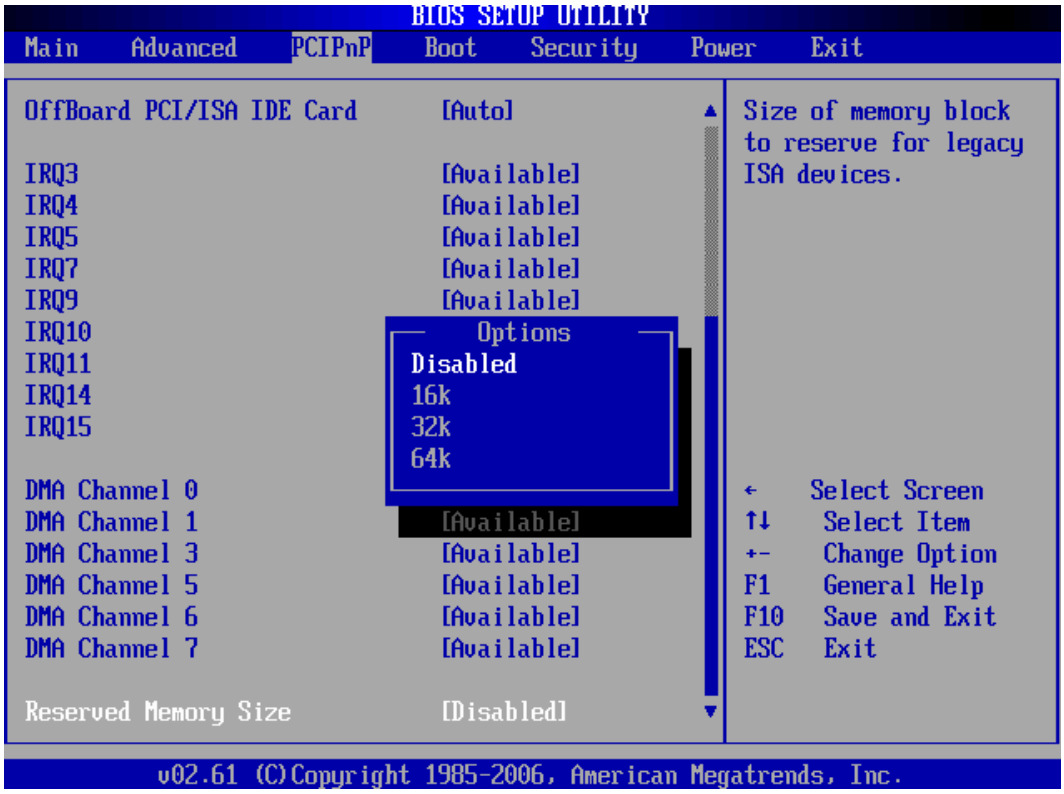
DMA Channel PCI/PMP functions. The options: [Available], [Reserved].



Reserved Memory Size

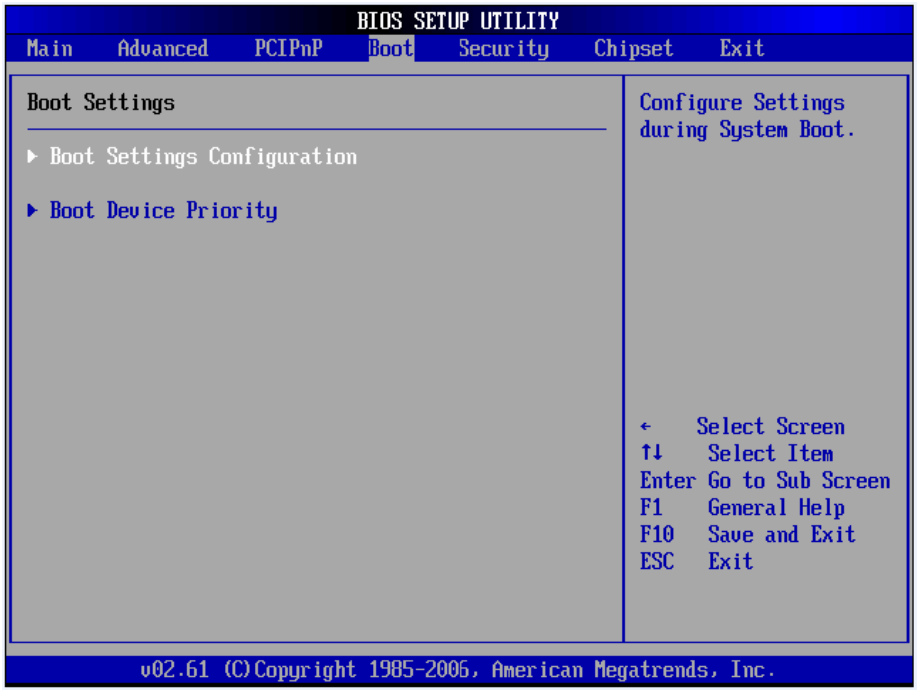
Set up the size of memory block to reserve for legacy ISA devices.

The options: [Disabled], [16 K], [32 K], [64 K].



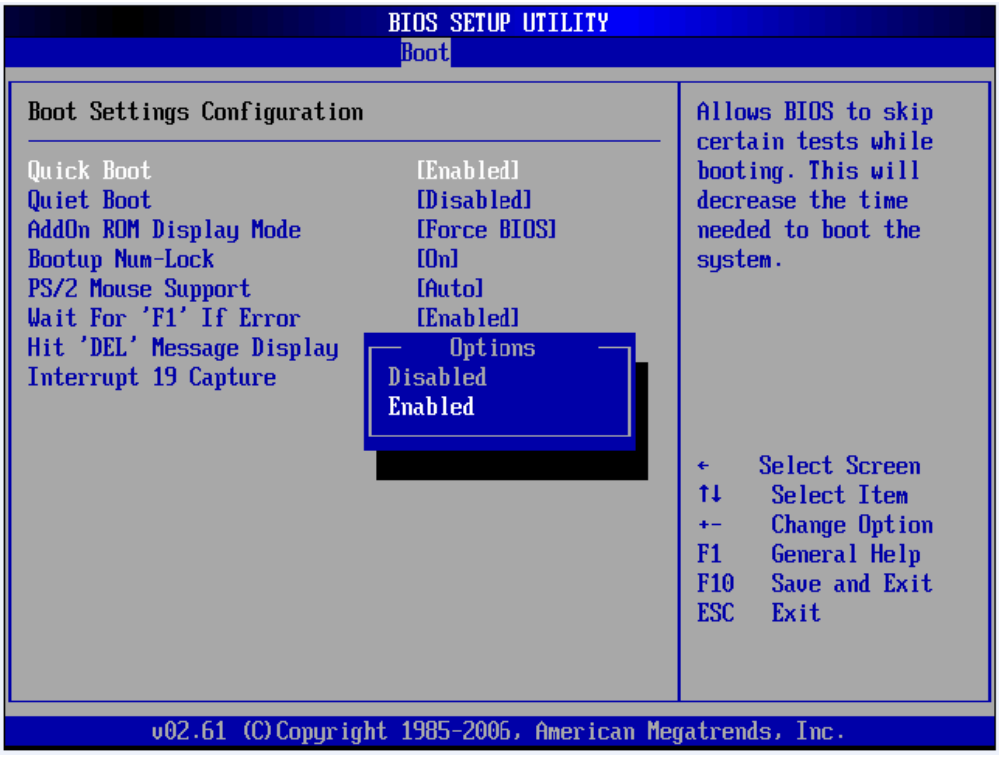
7.5 Boot

Boot Setting Configuration



Quick Boot

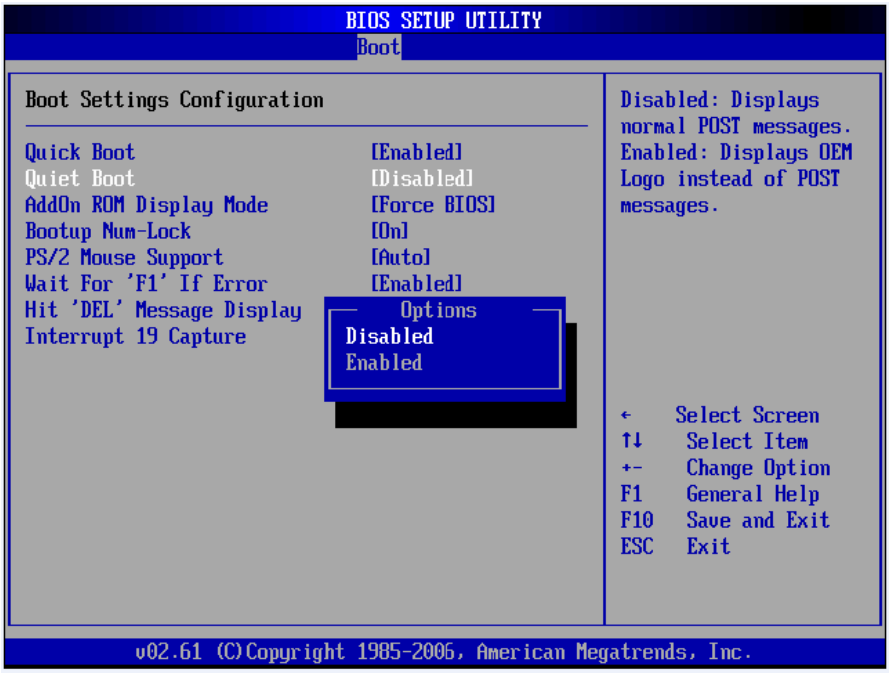
Enable this item will allow the BIOS to skip some power on self test (POST) while booting to reduce the time needed to boot the system. When set up to [Disabled], BIOS performs all the POST items. The options: [Disabled], [Enabled].



Quiet Boot

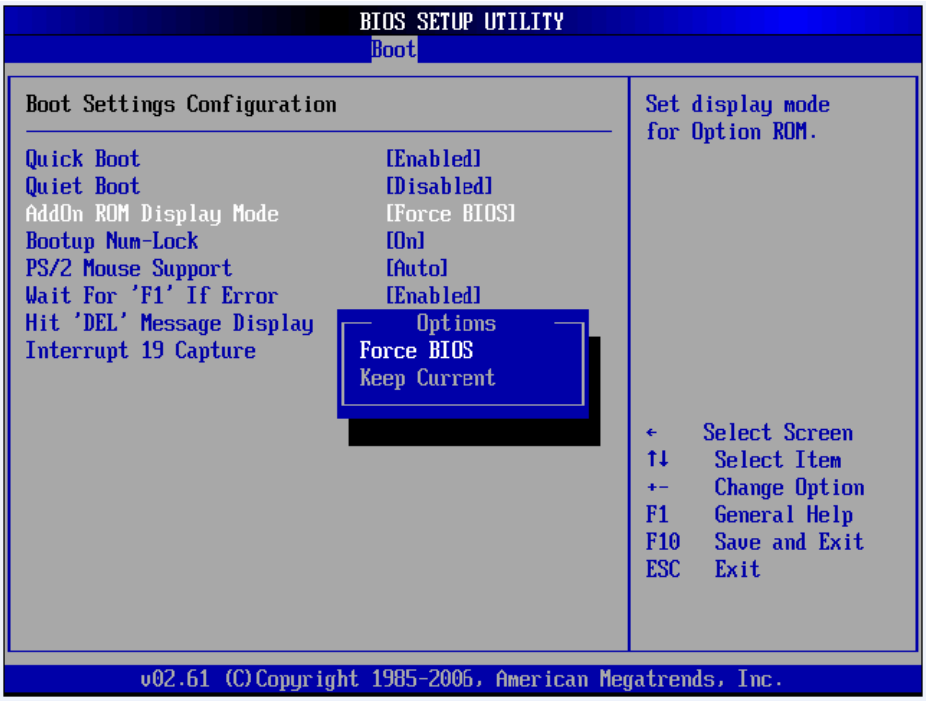
It allows you to display Normal POST message or OEM logo.

The options: [Disabled], [Enabled].



AddOn ROM Display Mode

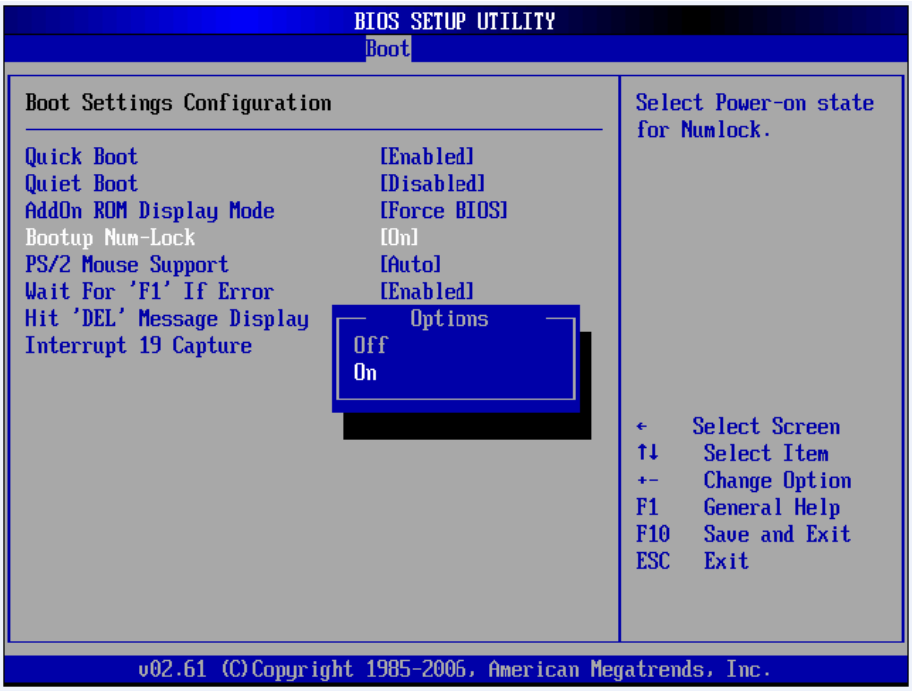
Set display mode for option ROM.



Boot up Num-Lock

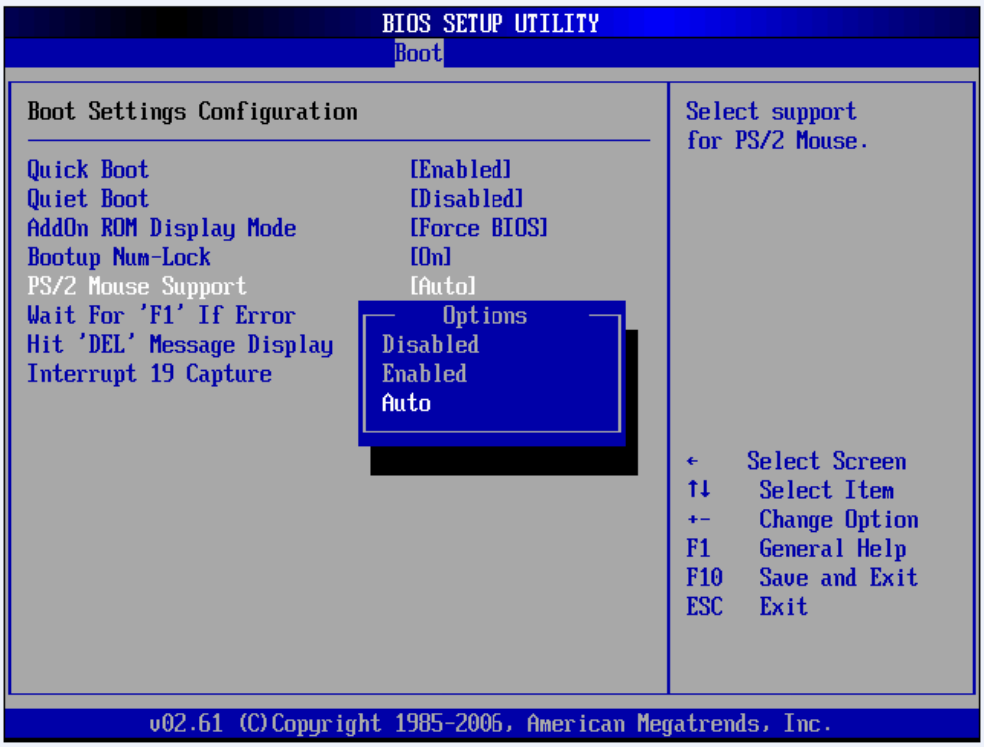
It allows you to select the power-on status for the NumLock.

The options: [Off], [On].



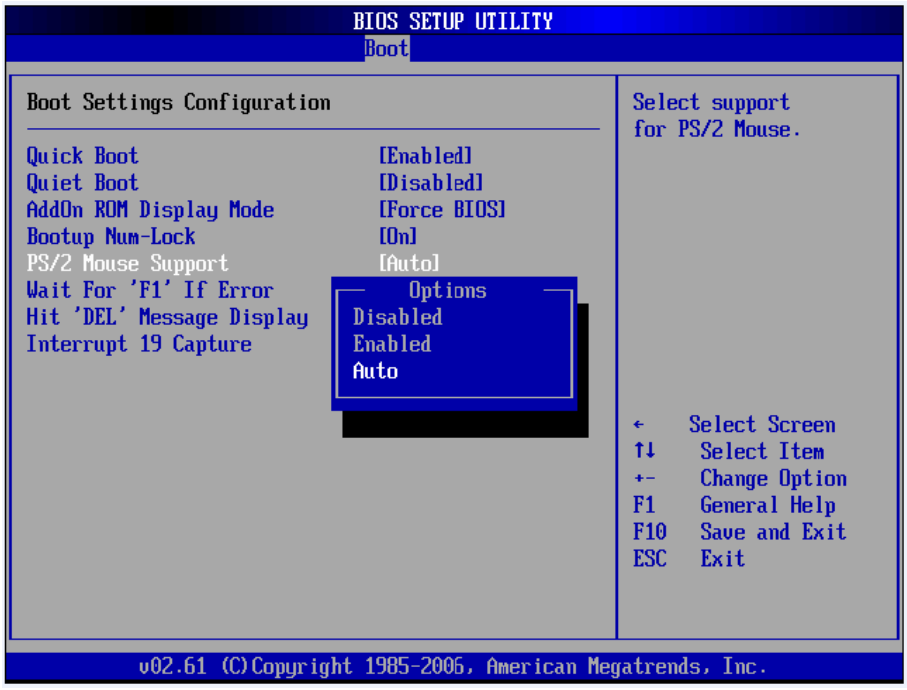
PS/2 Mouse Support

Select support for PS/2 Mouse.



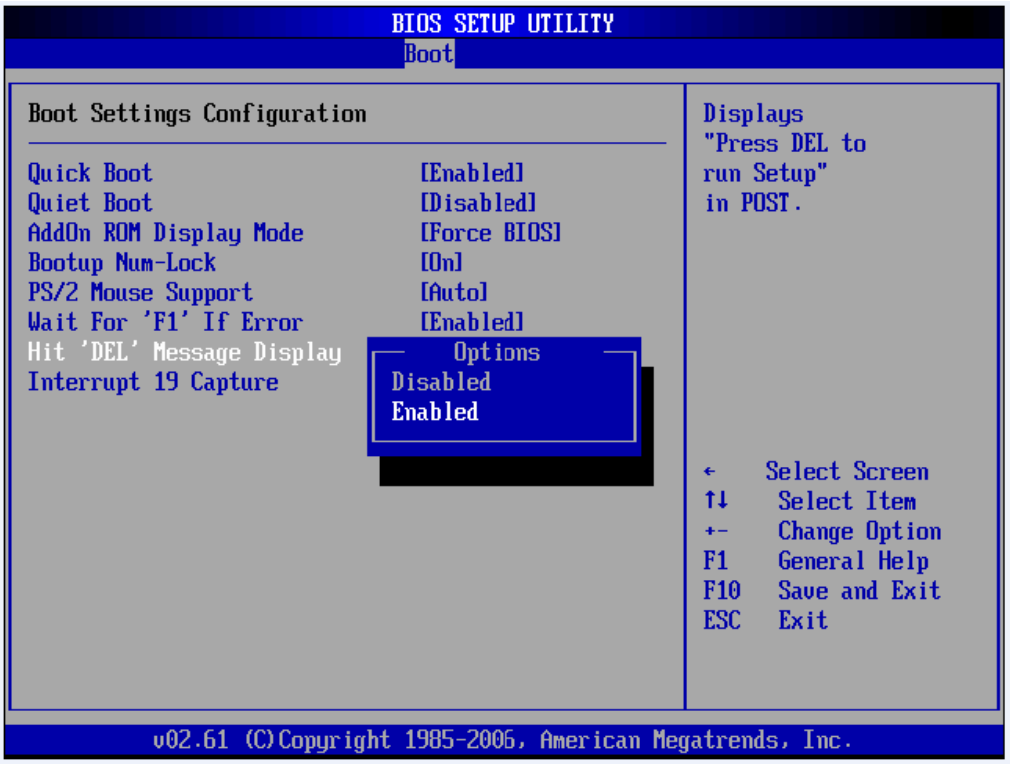
Wait for ‘F1’ If Error

When you set up to “Enabled”, the system waits for the F1 key to be pressed when error occurs. The options: [Disabled], [Enabled].



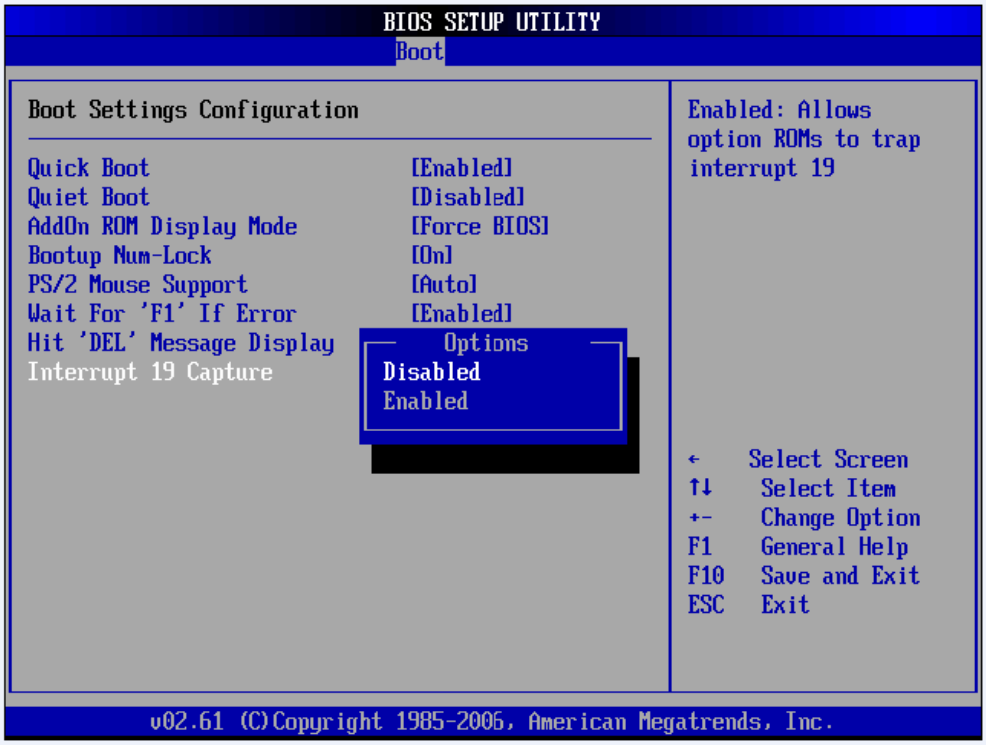
Hit .DEL. Message Display

Displays .Press DEL to run Setup. in POST.

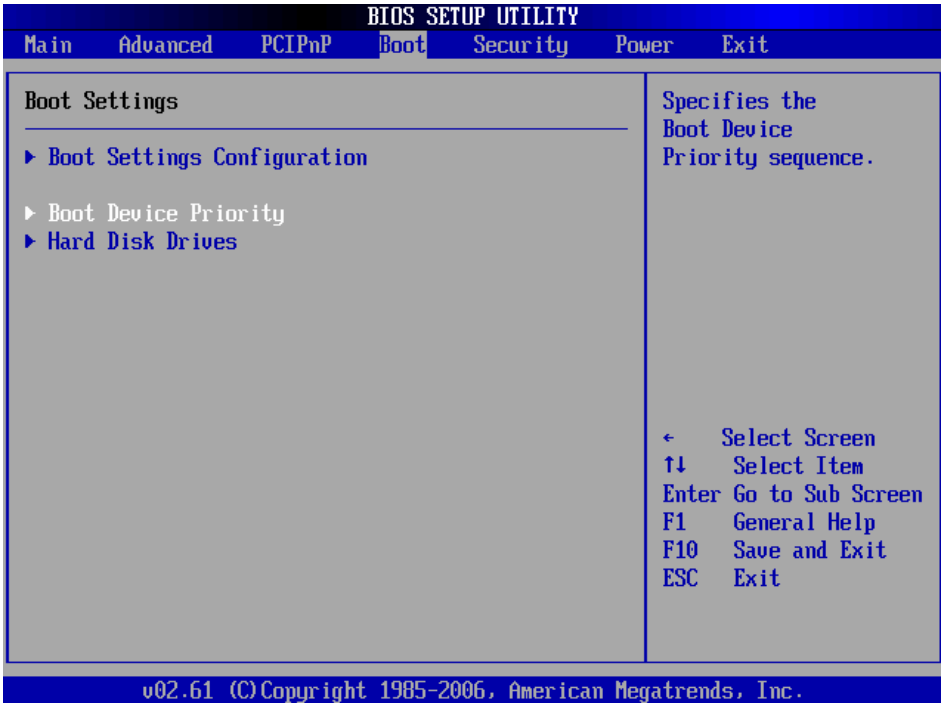


Interrupt 19 Capture

This item allows option ROMs to trap interrupt 19.

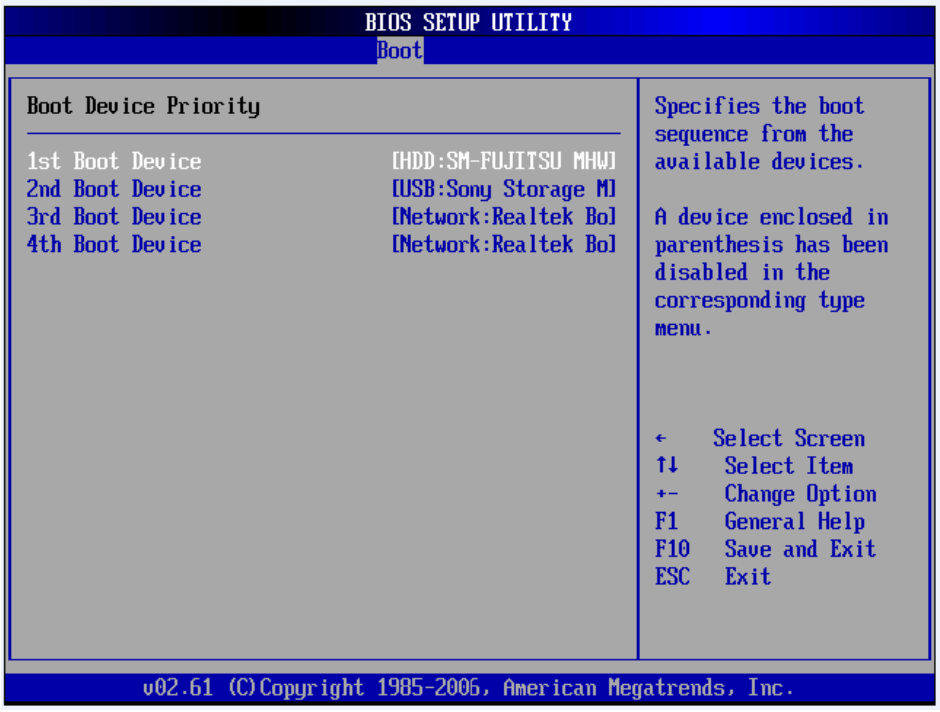


Boot Device Priority



Boot Device Priority

Select the priority of Boot devices.


BIOS SETUP UTILITY
Boot
Boot Device Priority
1st Boot Device [HDD:SM-FUJITSU MHW]
2nd Boot Device [USB:Sony Storage M]
3rd Boot Device [Network:Realtek Bo]
4th Boot Device [Network:Realtek Bo]
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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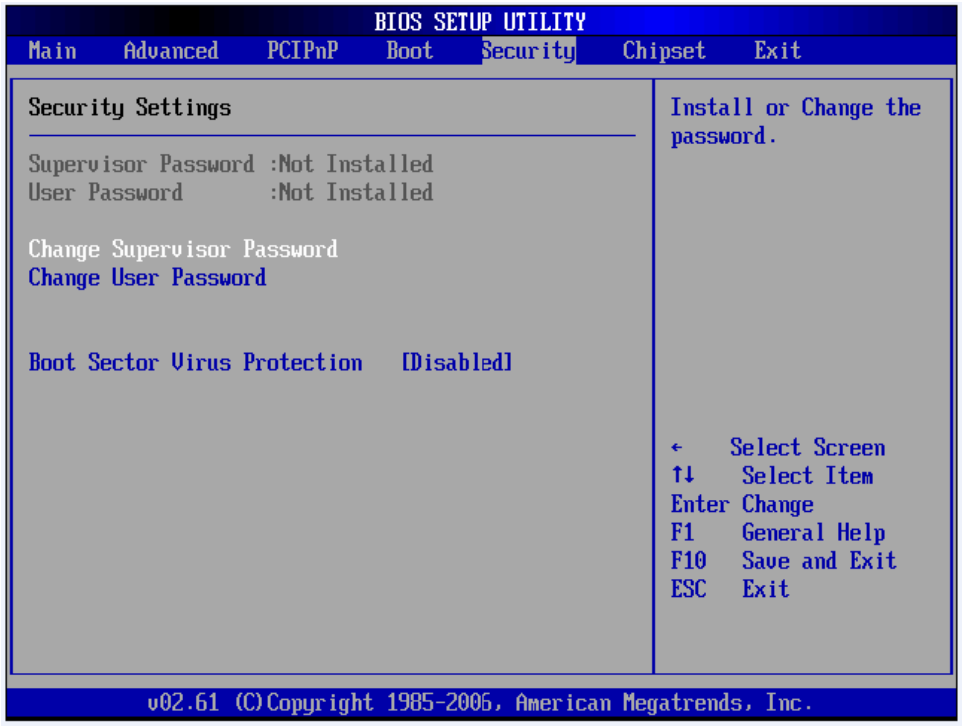
7.6 Security



Select Security Setup from the IA70 Motherboard's Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection are described in this section. To access the sub menu for the following items, select the item and press <Enter>:

ï Change Supervisor Password
ï Boot sector Virus protection: The boot sector virus protection will warn if any program tries to write to the boot sector.

7.7 Chipset

North Bridge Chipset Configuration

BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
North Bridge Configuration
South Bridge Configuration
Configure North Bridge features.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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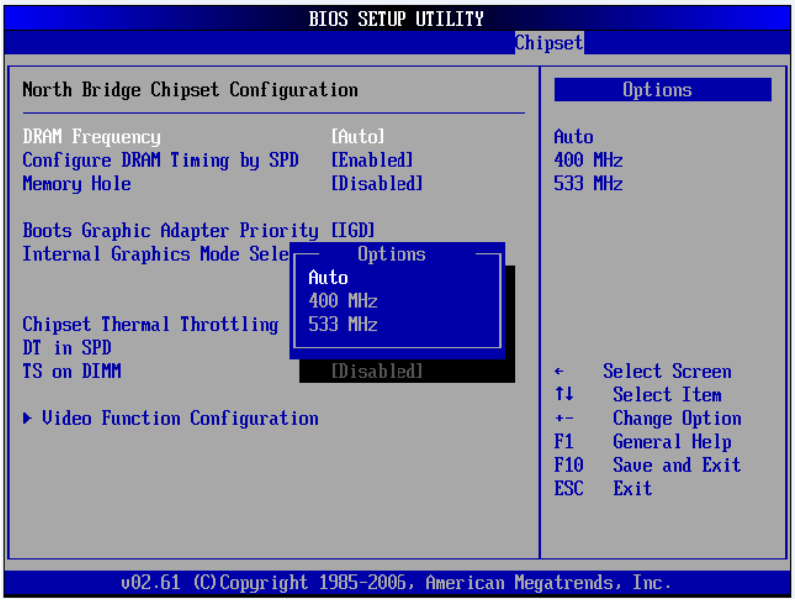


DRAM Frequency

This item allows you to manually change DRAM frequency.

Configure DRAM Timing by SPD

This item allows you to enable or disable detect by DRAM SPD.

Memory Hole

This option is used to reserve memory space between 15MB and 16MB for ISA expansion cards that require a specified area of memory to work properly.

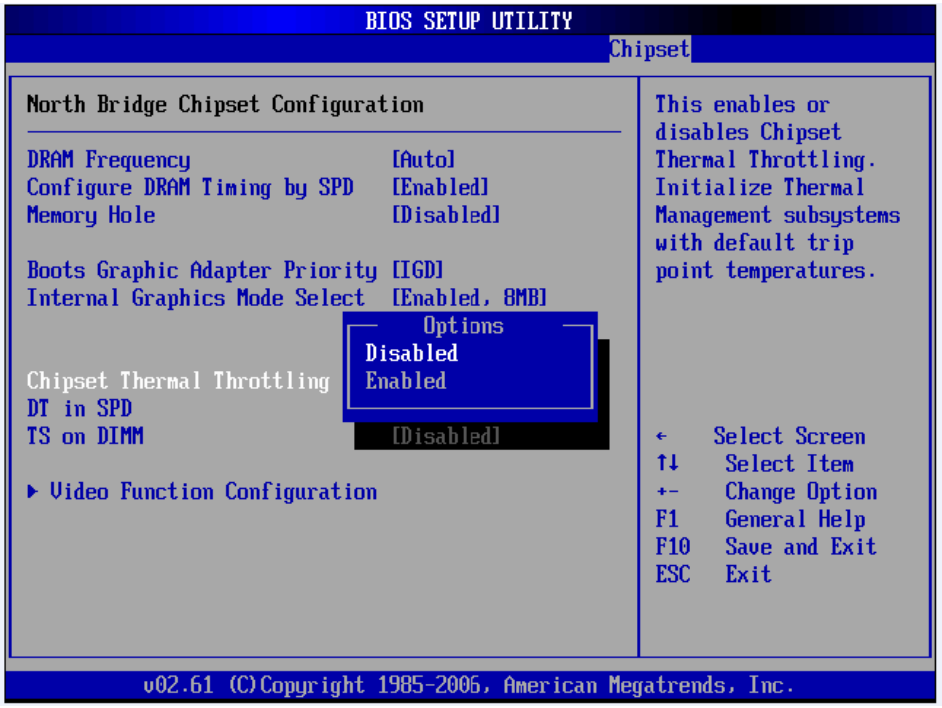
Boots Graphic Adapter Priority [IGD]

This option is used to select the graphics controller used as the primary boot device. Select either an integrated graphics controller (IGD) or a combination of PCI graphics controller, a

PCI express (PEG) controller or an IGD.

Internal Graphics Mode Select

This option is used to specify the amount of system memory that can be used by the Internal graphics device. Select the amount of system memory used by the Internal graphics device



Chipset Thermal Throttling

This Enables or Disables Chipset Thermal Throttling

DT in SPD

The choice: Disabled, Enabled.

TS on DIMM

The choice: Disabled, Enabled.

South Bridge Chipset Configuration

BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections
may cause system to malfunction.
North Bridge Configuration
South Bridge Configuration
Configure South Bridge features.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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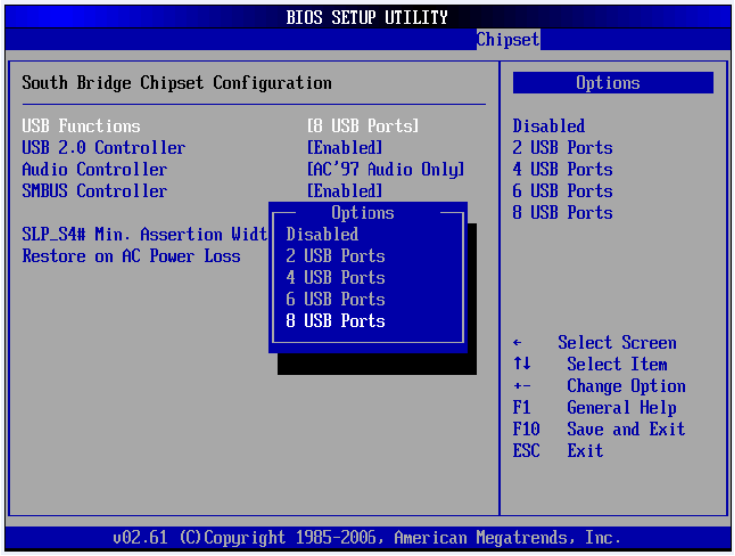


USB Functions

Select: Disabled, 2 USB Ports, 4 USB Ports, 6 USB Ports or 8 USB Ports.

USB 2.0 Controller

Enables or disables the USB 2.0 controller.

SMBUS Controller

Enables or disables the SMBUS controller.

SLP_S4# Min. Assertion Width

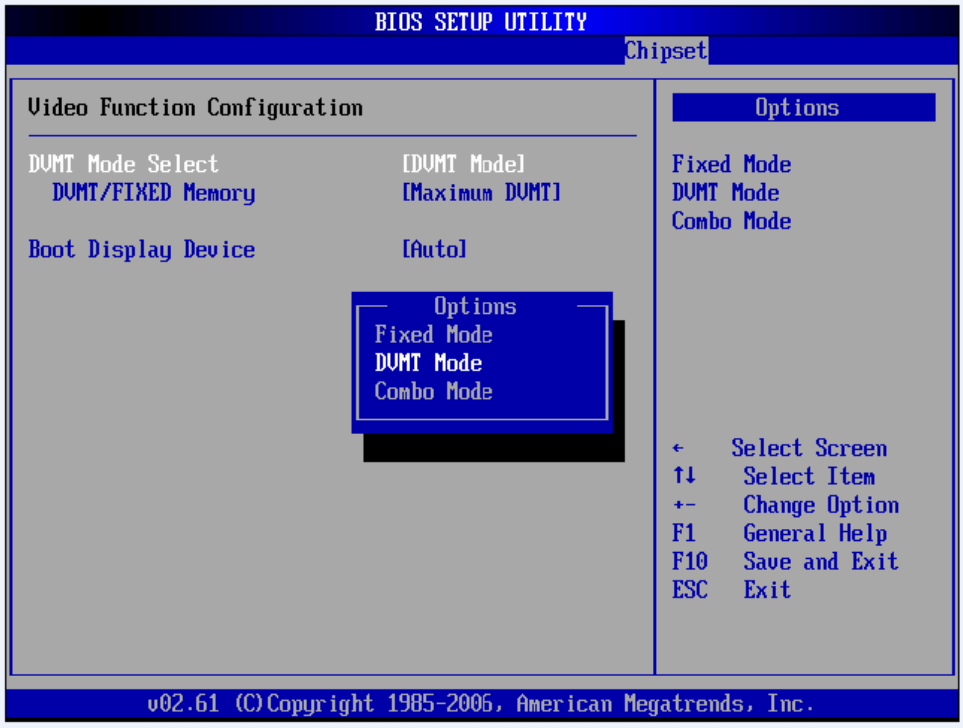
This item allows you to set a delay of a set number of seconds.

Restore on AC Power Loss

This option allows user to set system action when AC power restores after AC power loss. Available options include Power Off, Power On, Last Status.

Video Function Configuration

Select boot display device at post stage. You could select Auto/VGA/LVDS only/LVDS+VGA.



DVMT Mode Select

Displays the active system memory mode.

DVMT/FIXED Memory

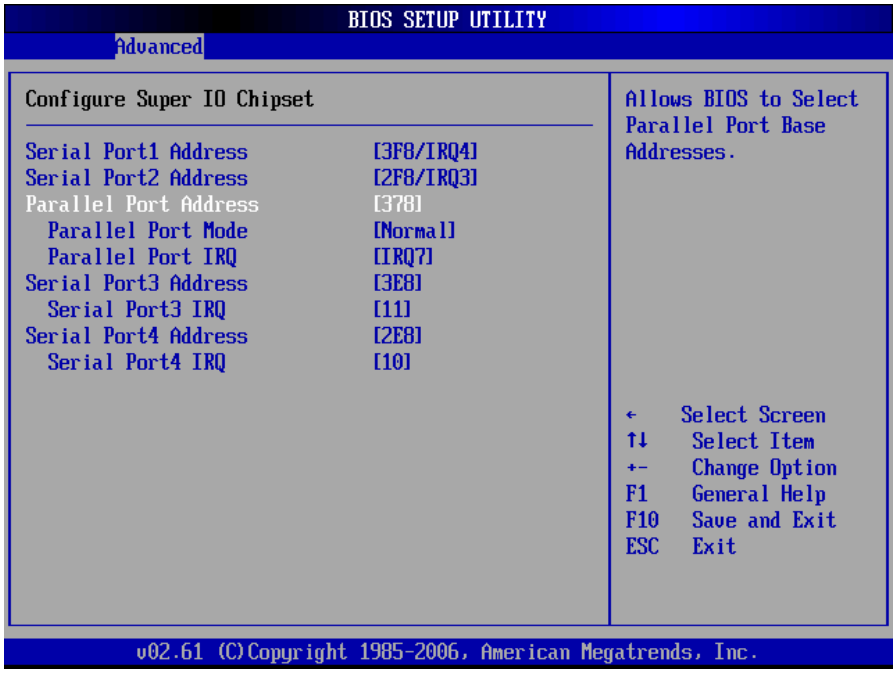
Specifies the amount of DVMT / FIXED system memory to allocate for video memory.

Boot Display Device

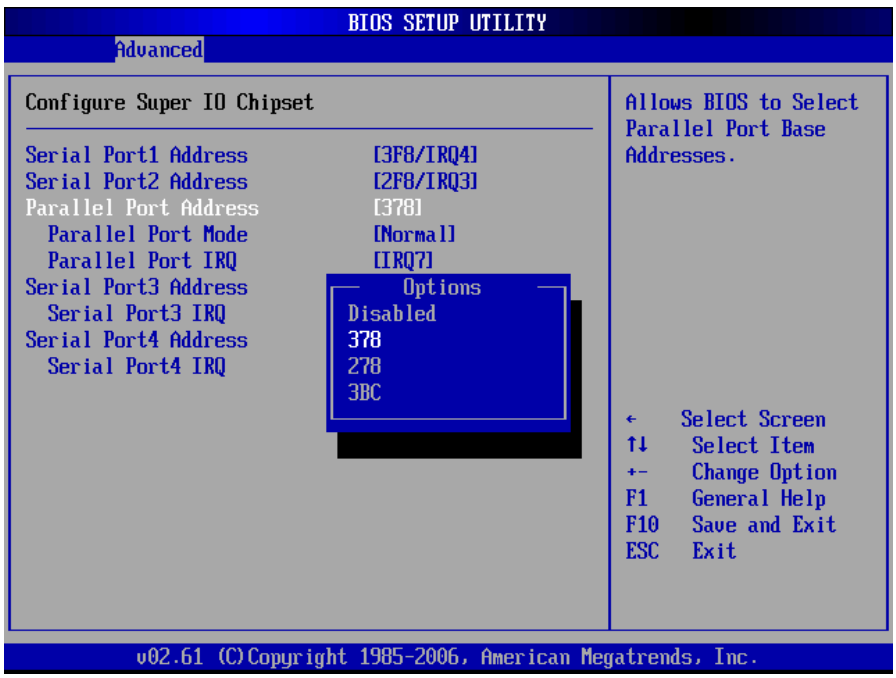
Select boot display device at post stage.

7.8 On Board Parallel/ Printer Port

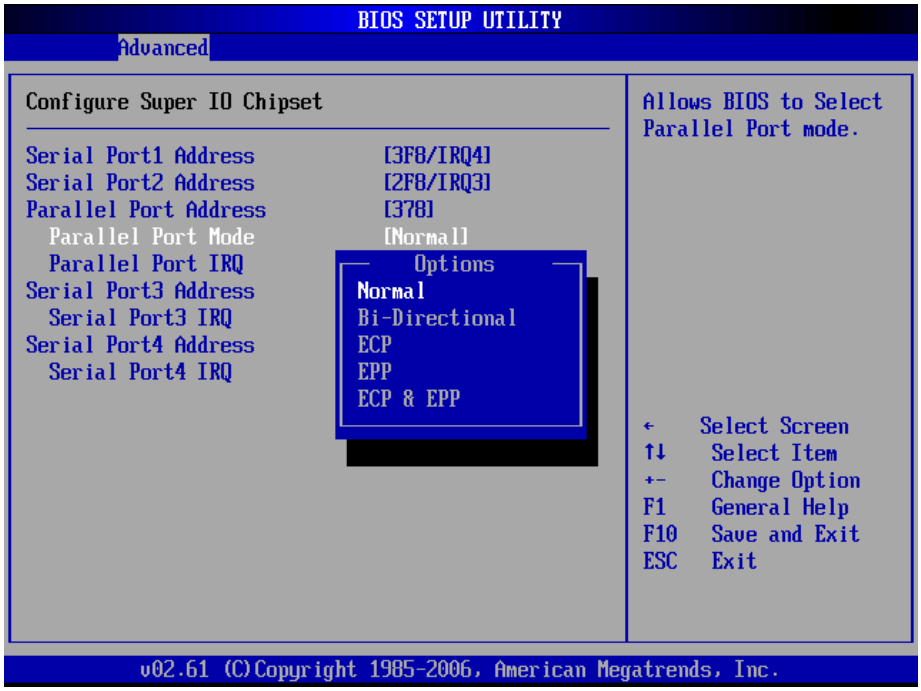
When you select BIOS SETUP UTILITY, You could select “Parallel Port Address “, in Configuration page.



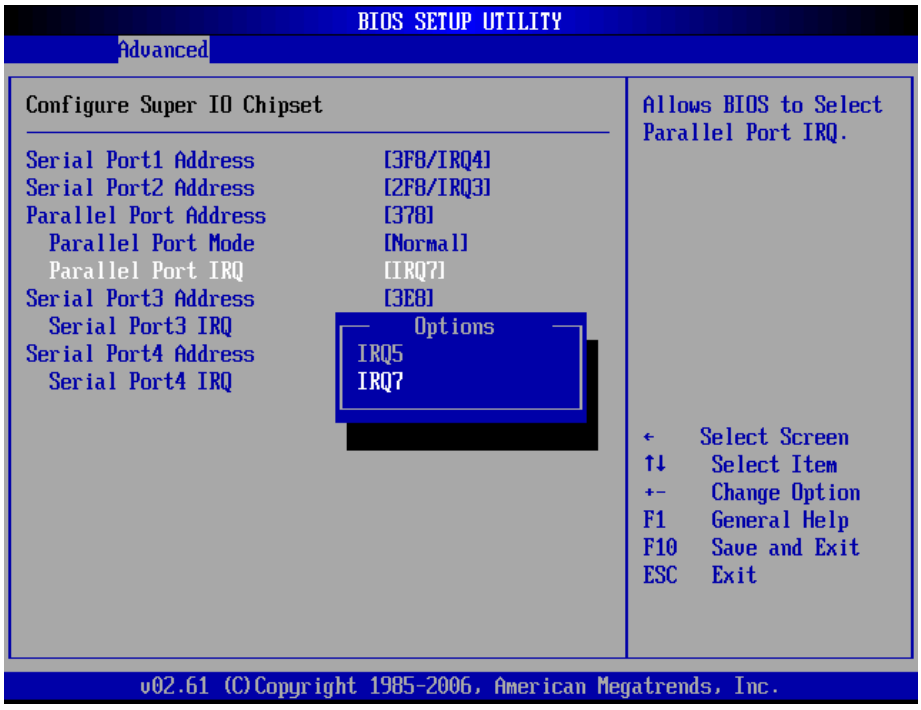
This field sets the address of the on board parallel port connector. Available options:[Disable][378] [278][3BC]



This field sets the mode of the on board parallel port connector. Available options:[Normal][Bi-Directional] [ECP] [EPP] [ECP&EPP]

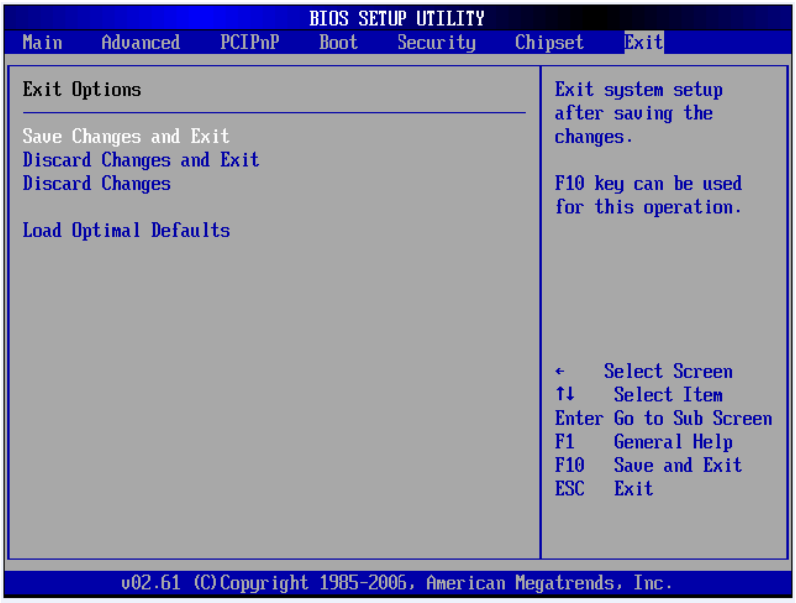


This field sets the IRQ of the on board parallel port connector. Available options: [IRQ5][IRQ7]



7.9 Exit

This Exit menu item allows you to load the optimal or failsafe default value for the BIOS items, and save or discard your changes to the BIOS items.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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Save Changes and Exit

When you have completed system configuration, select this option to save your changes, exit BIOS setup and reboot the computer so the new system configuration parameters can take effect.

1.Select Save Changes and Exit from the Exit menu and press <Enter>. The following message appears:

Save Configuration Changes and Exit Now?

[Ok] [Cancel]

2. Select Ok or Cancel.

Discard Changes and Exit

Select this option to quit Setup without making any permanent changes to the system configuration.

1. Select Discard Changes and Exit from the Exit menu and press <Enter>. The following message appears:

Discard Changes and Exit Setup Now?

[Ok] [Cancel]

2. Select Ok to discard changes and exit.

Discard Changes

1. Select Discard Changes from the Exit menu and press <Enter>.

Load Optimal Defaults

The AIMB-212 automatically configures all setup items to optimal settings when you select this option. Optimal Defaults are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal.

Defaults if your computer is experiencing system configuration problems. Select Load Optimal Defaults from the Exit menu and press <Enter>.

Note1: Digital I/O Sample Code

```
//File of the Main.cpp
//=============================================================
//This code is for test I570 Super I/O.
//=============================================================
#include <dos.h>
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>

//=============================================================
#define W83627EHG_INDEX_PORT 0x2E
#define W83627EHG_DATA_PORT 0x2F
//=============================================================
#define W83627EHG_REG_LD 0x07
//=============================================================
#define W83627EHG_UNLOCK 0x87
#define W83627EHG_LOCK 0xAA

//=============================================================
void ClrKbBuf(void);
void Unlock_W83627EHG(void);
void Lock_W83627EHG(void);
void Set_W83627EHG_Reg(unsigned char,unsigned char);
unsigned char Get_W83627EHG_Reg(unsigned char);
int main ();
//=============================================================
int main ()
{
      unsigned char ucDO = 0; //data for digital output
      unsigned char ucDI; //data for digital input
      unsigned char ucBuf;
      Set_W83627EHG_Reg(0x07,0x07);//switch to logic device 7

//    PIN 121~128 function select
```

```
//      Bit0 = 0 -> Game Port.
//           = 1 -> GPIO1.
        ucBuf = Get_W83627EHG_Reg(0x29);
        Set_W83627EHG_Reg(0x29,ucBuf|0x01);

//    Bit0 = 0 -> GPIO1 is inactive.
//      Bit1 = 1 -> Activate GPIO1.
        ucBuf = Get_W83627EHG_Reg(0x30);
        Set_W83627EHG_Reg(0x30,ucBuf|0x01);//Activate GPIO1

        Set_W83627EHG_Reg(0xF0,0x0F);//switch GPIO Input(1)/Output(0) port

        Set_W83627EHG_Reg(0xF1, 0x00); //clear
        ucDI = Get_W83627EHG_Reg(0xF1) & 0x0F;
        ClrKbBuf();
        while(1)
        {
            ucDO++;
            Set_W83627EHG_Reg(0xF1, ((ucDO & 0x0F) << 4));
            ucBuf = Get_W83627EHG_Reg(0xF1) & 0x0F;
            if (ucBuf != ucDI)
            {
                ucDI = ucBuf;
                printf("Digital I/O Input Changed. Current Data is 0x%X\n",ucDI);
            }
            if (kbhit())
            {
                getch();
                break;
            }
            delay(500);
        }
        return 0;
}
//=============================================================
void ClrKbBuf(void)
{
        while(kbhit())
```

```
        { getch(); }
}
//---------------------------------------------------------------------

void Unlock_W83627EHG (void)
{
        outportb(W83627EHG_INDEX_PORT, W83627EHG_UNLOCK);
        outportb(W83627EHG_INDEX_PORT, W83627EHG_UNLOCK);
}
//=====================================================================
void Lock_W83627EHG (void)
{
        outportb(W83627EHG_INDEX_PORT, W83627EHG_LOCK);
}
//=====================================================================
void Set_W83627EHG_Reg( unsigned char REG, unsigned char DATA)
{
        Unlock_W83627EHG();
        outportb(W83627EHG_INDEX_PORT, REG);
        outportb(W83627EHG_DATA_PORT, DATA);
        Lock_W83627EHG();
}
//=====================================================================
unsigned char Get_W83627EHG_Reg( unsigned char REG)
{
        unsigned char Result;
        Unlock_W83627EHG();
        outportb(W83627EHG_INDEX_PORT, REG);
        Result = inportb(W83627EHG_DATA_PORT);
        Lock_W83627EHG();
        return Result;
}
//=====================================================================
```

Note2: Watchdog Sample Code

```
//File of the Watchdog.cpp
//============================================================
//This Sample code is for Watchdog timer configuration
//============================================================
//============================================================
#include <dos.h>
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>

//============================================================
#define W83627_INDEX_PORT 0x2E
#define W83627_DATA_PORT 0x2F
#define W83627_UNLOCK 0x87
#define W83627_LOCK 0xAA
//#define Watchdog_timeout 10

//============================================================
void Unlock_W83627(void);
void Lock_W83627(void);
void Set_W83627_Reg(unsigned char,unsigned char);
unsigned char Get_W83627_Reg(unsigned char);
//============================================================

int main ()
{

    int Watchdog_timeout = 10;
    printf("Input Watchdog Timer time-out value [0-255] : ");
    scanf("%d",&Watchdog_timeout);
    if(Watchdog_timeout <= 0 || Watchdog_timeout > 255)
    {
        printf("Time-out value out of range!!\n\n");
        printf("Input Watchdog Timer time-out value [0-255] : ");
        scanf("%d",&Watchdog_timeout);
```

```
    }
    Set_W83627_Reg(0x07,0x08);//switch to logic device 8

    Set_W83627_Reg(0x30,0x01);//Activate watchdog

    Set_W83627_Reg(0xF5,0x06);//Select WDTO# count mode.Second Mode.

    Set_W83627_Reg(0xF6,Watchdog_timeout); //Set Watch Dog Timer Time-out
value

    //Set_W83627_Reg(0xF7,0xC0); //Clear Watchdog timer event

    int i = Watchdog_timeout;
    while(1)
    {
        if (kbhit())
        {
            if(getch()==0x1B)  //Esc
                break;
            else{
                i=Watchdog_timeout;     //Reset Watchdog timer
                Set_W83627_Reg(0xF6,Watchdog_timeout); //Set Watch Dog
Timer Time-out value
            }
        }
        clrscr();
        if(i>0){
            i--;
            printf("After %2d sec reset computer!\n",i);
            printf("Press any key to reset watchdog timer!\n");
            printf("Press [Esc] to exit!\n");

        }
        else
            printf("Watchdog timer fail!");
        delay(1000);
    }
```

```
	Set_W83627_Reg(0xF6,0);	//Disable Watchdog timer

	return 0;
}


//---------------------------------------------------------------------

void Unlock_W83627 (void)
{
	outportb(W83627_INDEX_PORT, W83627_UNLOCK);
	outportb(W83627_INDEX_PORT, W83627_UNLOCK);
}
//=============================================================
void Lock_W83627 (void)
{
	outportb(W83627_INDEX_PORT, W83627_LOCK);
}
//=============================================================
void Set_W83627_Reg( unsigned char REG, unsigned char DATA)
{
	Unlock_W83627();
	outportb(W83627_INDEX_PORT, REG);
	outportb(W83627_DATA_PORT, DATA);
	Lock_W83627();
}
//=============================================================
unsigned char Get_W83627_Reg( unsigned char REG)
{
	unsigned char Result;
	Unlock_W83627();
	outportb(W83627_INDEX_PORT, REG);
	Result = inportb(W83627_DATA_PORT);
	Lock_W83627();
	return Result;
}
//=============================================================
```

Note3:

There are some known problems when you are installing software in CF Card as following condition:

1. Master: IDE CD-ROM (PIONEER DVD-227A)
   Slave: CF Card (Transcend 120X-standard)
   CF Card is not founded.

2. Master: CF Card (InnoDisk)
   Slave: IDE CD-ROM (Plextor PX-760A)
   CD-ROM is not founded.

3. Master: CF Card (InnoDisk)
   Slave: IDE CD-ROM (PIONEER)
   CF Card is not founded.

4. Master: CF Card (Transcend 120X-standard)
   Slave: IDE CD-ROM (Plextor PX-760A)
   CD-ROM is not founded.

5. Master: IDE CD-ROM (Plextor PX-760A)
   Slave: CF Card (Transend 120X-standard)
   CF Card is not founded.